ENGINEERING NEWS-RECORD

SEPT. 28, 1961

PRICE 50 CENTS

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▶ The successful search for cheap canal linings p. 34

Fitting Cities to the Future

L. A. adds glamor to its glamor street

STEVENS RICE GS
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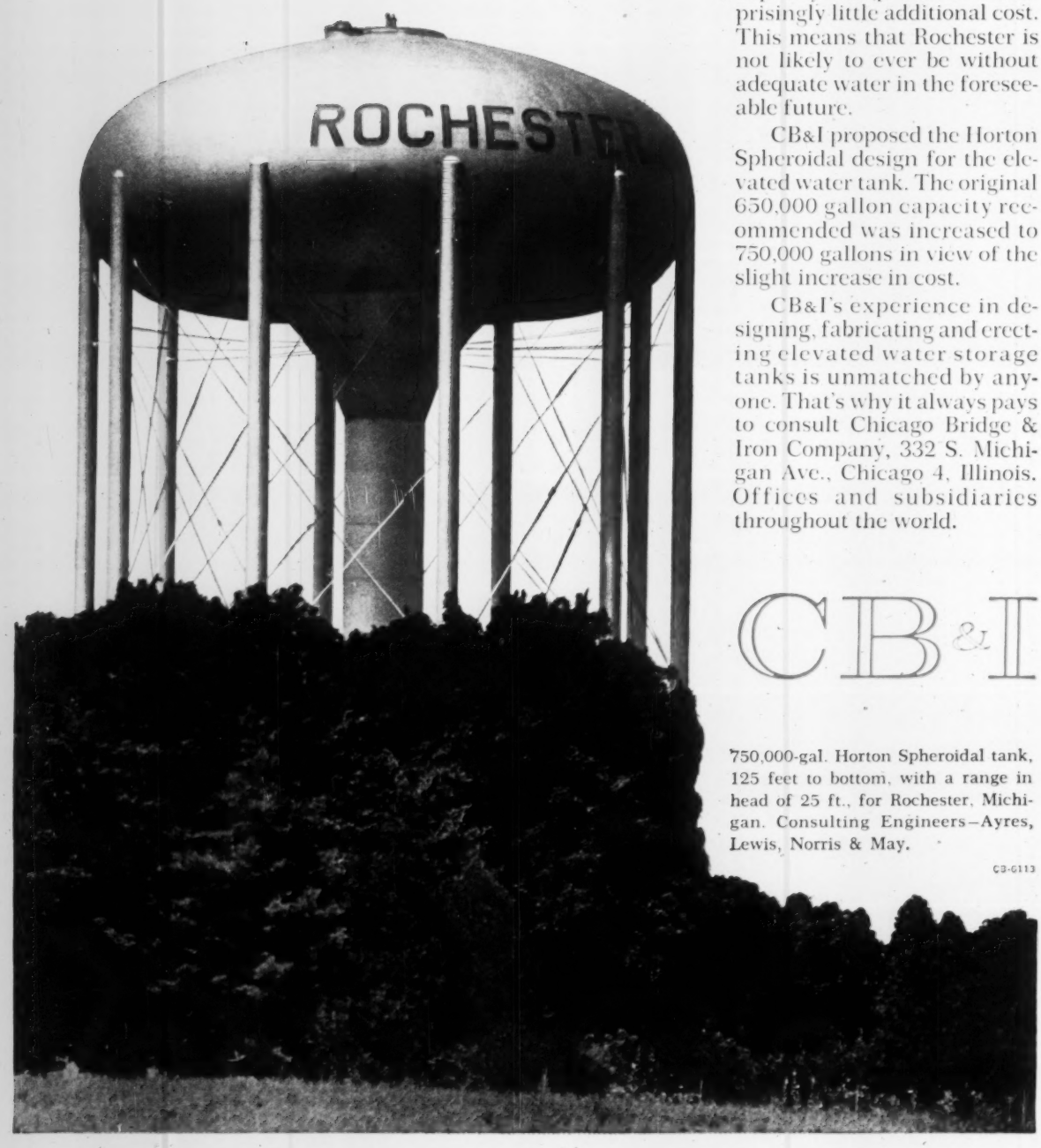
An Additional 100,000 Gallon Capacity ...A Bonus for Little Extra Cost



A 750,000 gallon elevated steel water tank for a village of 5,400 people may sound like a luxury. Actually it is, to the extent of 100,000 gallons excess capacity over present requirements. However, this extra capacity was provided at surprisingly little additional cost. This means that Rochester is not likely to ever be without adequate water in the foreseeable future.

CB&I proposed the Horton Spheroidal design for the elevated water tank. The original 650,000 gallon capacity recommended was increased to 750,000 gallons in view of the slight increase in cost.

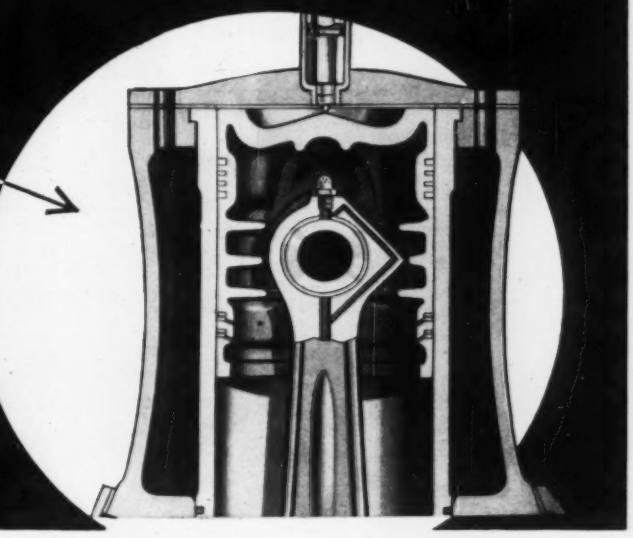
CB&I's experience in designing, fabricating and erecting elevated water storage tanks is unmatched by anyone. That's why it always pays to consult Chicago Bridge & Iron Company, 332 S. Michigan Ave., Chicago 4, Illinois. Offices and subsidiaries throughout the world.

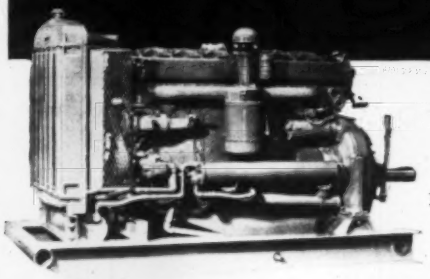
CB&I

750,000-gal. Horton Spheroidal tank, 125 feet to bottom, with a range in head of 25 ft., for Rochester, Michigan. Consulting Engineers—Ayres, Lewis, Norris & May.

CB-6113

Another way you save money with a MURPHY DIESEL





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faster starting
smoother performance

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Unit Fuel Injectors serve as both pump and nozzle to provide precise control, faster response and greater fuel economy with minimum downtime, minimum attention.

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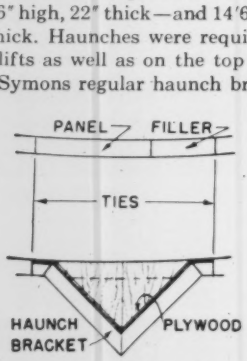
Symons special haunch brackets re-used 4 times at a cost far below job-built brackets

How to form a series of four 80 ft diameter sludge digestor tanks was the big problem on this job. Calumet Construction Company, Hammond, Indiana, solved it by using Symons Steel-Ply Forms and 3 sizes of special haunch brackets.

The tanks were poured in two lifts —10'6" high, 22" thick—and 14'6" high, 14" thick. Haunches were required on both lifts as well as on the top of the wall. Symons regular haunch brackets



Plan view of special haunch brackets used horizontally on first lift.

were modified to comply with the job requirements. Result: 22 brackets were re-used four times at a price far below what it would have cost to job-build each bracket.

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LUBE LOGIC

New tips for

Don't let storage tank contaminate gasoline

One of the basic essentials of good equipment performance is clean fuel; and the best way to make sure the fuel you use is as clean as the fuel you buy is to keep your own storage facilities up to snuff.

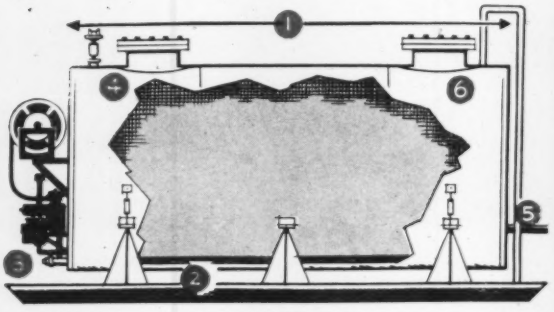
What does it take to make the ideal gasoline storage tank? Here are some of the specifics that Texaco engineers have found to be most important.

The ideal gasoline storage tank has:

1. Plenty of room. Every time you fill a tank you stir up the sediment at the bottom. The bigger the tank, the less it has to be refilled, and the longer the sediment stays settled on the bottom.

2. Welded construction.

3. A 1½" drain valve, located at the lowest point.



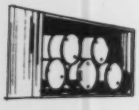
4. A large hand hole plate or manhole, to make cleaning easier.

5. A suction line to the gasoline pump located several inches above the tank bottom, to avoid drawing out the sediment and condensate.

6. A fine-mesh strainer over the filler opening.

Four tips to keep hydraulic oil clean in storage and handling

Even the best maintenance techniques won't keep your hydraulic equipment on the move if you don't keep the oil clean while it's in storage and while it's being put into the machine. Here are four simple precautions that will assure you of getting nothing but clean, clear oil in the hydraulic system:



1. Store the drums on their sides, indoors if possible, but in any event under some sort of shelter.

2. Before you open a drum, clean the top so that no dirt or water can fall into the oil.

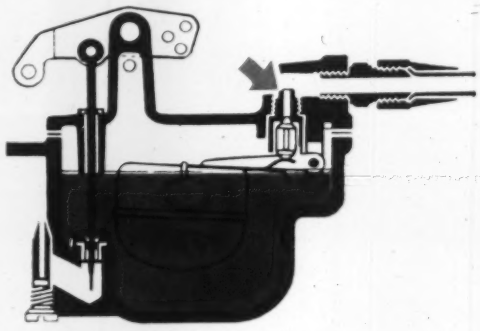
3. Make sure that you use only *clean* hose and containers in transferring the oil from the drum to the equipment.

4. Filter the oil as it enters the reservoir on the machine. If the fill pipe on the equipment doesn't have a filter, use a funnel fitted with a 200-mesh screen.

Protect diesel fuel injector with periodic tank drains

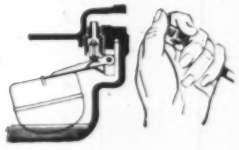
Dirt and water in diesel fuel can ruin a fuel injector in no time. Even if you keep the fuel clean during storage, there's still a good chance that temperature changes will create enough condensation in the fuel tank on your rig to start rusting in the injectors. Several operators have pretty well solved this problem by partially draining the fuel tank once or twice a week. Simply draw off about a gallon of fluid through the drain valve at the bottom of the fuel tank. You lose some fuel this way, but you also get the accumulated water and other contaminants clear out of the fuel system. The cost of the fuel you drain off is a small loss compared to the repair bills you save on the fuel injectors.

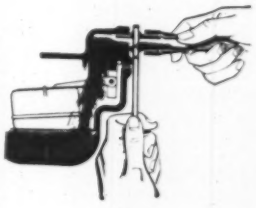
more efficient maintenance



Quick cure for carburetor flooding

Repeated stalling and hard restarting is often caused by a tiny particle of grit, which lodges under the carburetor float needle valve, lets too much gasoline into the carburetor and causes flooding. You can often solve the problem with the following routine: disconnect the fuel line at the carburetor and plug it with a cork, a pencil or anything else that will fit. Then run the engine until you've used up all the fuel in the carburetor. Reconnect the fuel line, crank the engine, and the rush of gasoline into the empty carburetor will often flush the foreign matter out of the needle valve seat. If you have a friend but no cork, have the friend start the engine while you plug the disconnected line with your thumb. Same difference.





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Reader Comment

No Reimbursement

SIR—A Construction Week item (ENR May 18, p. 31) stated that the solution to the problem of the proposed 42-ft clearance for a bridge across the Seekonk River between Providence-East Providence was that the state and the federal government will reimburse ship owners for the costs of shortening the masts affected.

This statement was probably based on a misinterpretation as it has no basis in fact. As part of the study report by the State of Rhode Island accompanying its application, the comparative costs of lowering masts was studied in detail as compared to the far greater additional cost of a higher profile, but the possible solution of having the state and federal government absorb the lesser cost of altering vessels was not advocated or mentioned.

In order to arrive at a justifiable determination between the views of the highway interests and the waterway users, the Corps of Engineers made an exhaustive investigation into the economic factors involved, retaining a third party expert in the field. At the conclusion of their study and having received no substantiating data from the navigation interests in their objection to the proposed clearance, the permit was granted as originally requested on May 4, 1961.

S. A. ENGDAHL
Supervising Civil Engineer (Bridges)
Department of Public Works
Providence, R. I.

Editor's Note: It is as Mr. Engdahl says. Lowering the masts was considered seriously, but reimbursement of costs from public funds was not.

All the Same Company

SIR—In your article on Iran (ENR Mar. 9, p. 36) some amplification should be applied to the statement: "It was an M-K report made for Iran back in 1946, in connection with a program for which World Bank loans were to be sought, that led into the formation of the Plan Organization."

Actually, the report was prepared by International Engineering Co., Inc. for Morrison-Knudsen International Co., Inc. Both of these companies are fully-owned subsidiaries of Morrison-Knudsen Company, Inc.

LYMAN D. WILBUR
Vice President
Morrison-Knudsen Co., Inc.
San Francisco, Calif

Let Ramses Go Under

SIR—In a recent issue, you reported on the program to raise the ancient Abu Simbel Temples (ENR June 29, p. 22).

Money spent on a project of no benefit to mankind is wasted; and I for one do not think the people of the United States should be asked to share any part of this expenditure through the United Nations.

With all the suffering in the world today, why anyone or any group wants to spend millions to perpetuate the relics of a society that is better forgotten is beyond me.

Isn't it about time to call a halt to obviously worthless projects?

Why not take the $70 million and assign a group of engineers to design and build a project that would benefit the United Arab Republic.

SAMUEL TARADASH
Commercial Shearing & Stamping Co.
Youngstown, Ohio

Art or Pretzel-bending?

SIR—The article Art Discovers the Highways (ENR Aug. 31, p. 23) confirms a suspicion I have long had. Highway engineering is a branch of pretzel-bending where the taxpayer must furnish the dough.

DON STEINMEYER
St. Louis, Mo.

Correction

SIR—We appreciate the inclusion of our name as consulting soils and foundation engineers pertaining to the construction of Charles Center in Baltimore (ENR July 20, p. 104).

However, we would appreciate a correction reflecting the correct name of our organization.

The name "Joseph S. Wood and Associates, soils engineers" should be changed to Joseph S. Ward and Associates, soils engineers.

JOSEPH S. WARD
Joseph S. Ward and Associates
Caldwell, N. J.

For Your Calendar . . .

National Conference on Industrial Hydraulics, annual meeting, Sherman Hotel, Chicago, Ill., Oct. 19-20. Write: W. R. Smith, Conference Secretary, 3300 S. Federal St., Chicago 16, Ill.

National Society of Professional Engineers, fall meeting, Hotel Roanoke, Roanoke, Va., Oct. 14-21. Write: NSPE, 2029 K St., N. W., Washington 6, D. C.

American Society of Mechanical Engineers, winter annual meeting, Statler Hilton Hotel, New York, N. Y., Nov. 26-Dec. 1. Write: ASME Meetings Dept., 29 W. 39th St., New York 18, N. Y.

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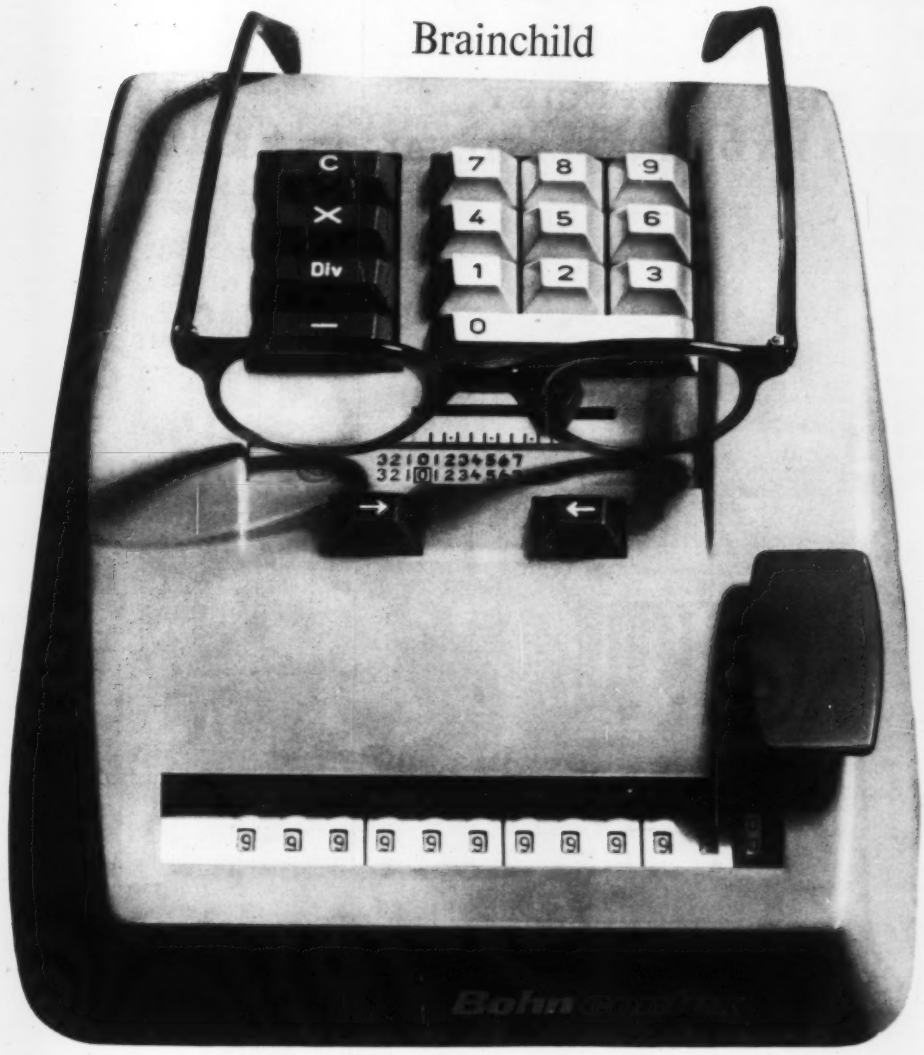

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The expensive machines give a running total, include an automatic decimal indicator and hold a constant.

So does the Bohn Contex.

Now here's what the big, expensive calculators *can't* do.

They can't double as high-speed 10-key adding-subtracting machines.

The Bohn Contex can.

They can't be operated by anyone after just a few minutes instruction.

The Bohn Contex can.

Most important of all, the Bohn Contex is the first compact, 10-key calculator that's truly portable. Brainchild of top international designers, it weighs only six pounds and is no bigger than your telephone. Slips into a briefcase and goes to work anywhere. Executive office, accounting department, out in the field, on business trips, plane, train, home... anywhere.

Businessmen, salesmen, engineers, architects, students, housewives find the Bohn Contex the easiest, fastest way to figure bills, invoices, percentages, extensions, estimates, income tax...

All this for $125*! No wonder they were skeptical.

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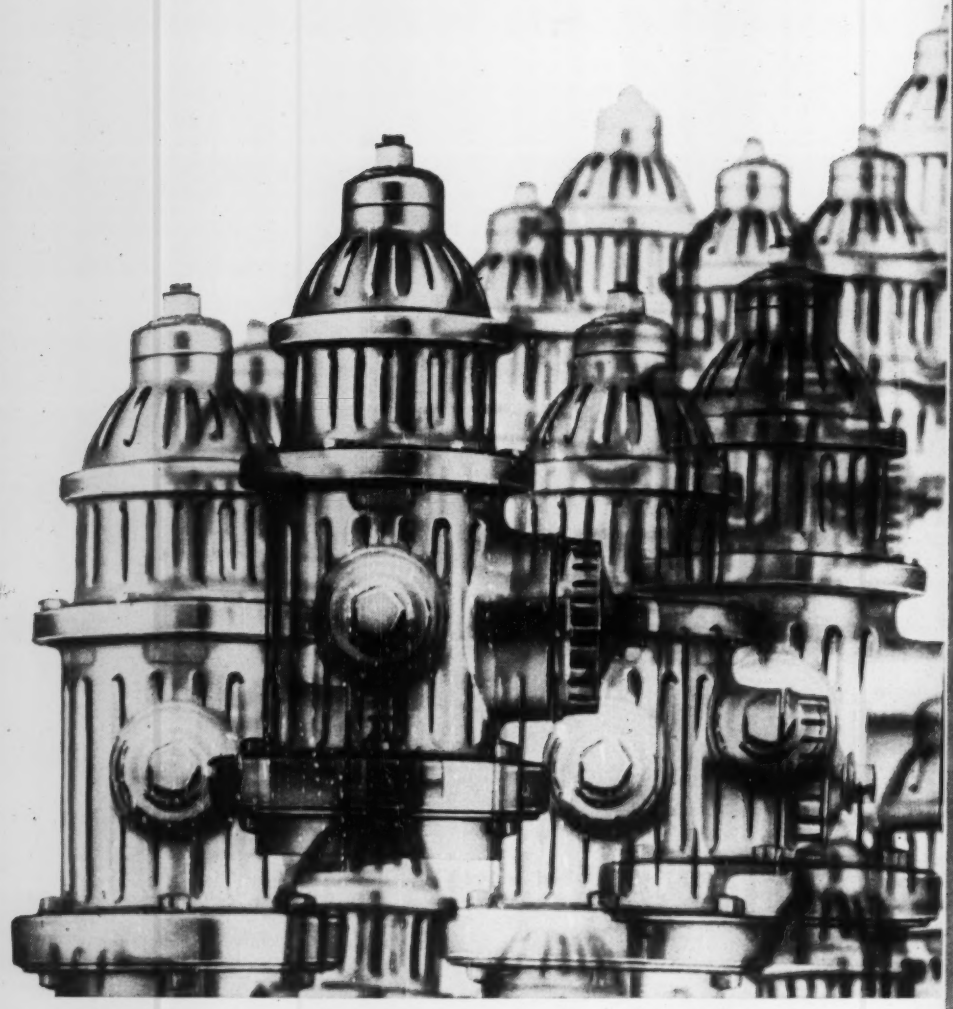
Borrow a Bohn Contex and see for yourself *how good it can be*. Any dealer listed on the left will lend you a hand (or electric) model.

If the dealer in your city is not listed, or you're not in a borrowing mood, just mail the coupon. *PLUS F.E.T. CARRYING CASE $14.95

Bohn Contex Calculator

OVER A MILLION REASONS

WHY YOU SHOULD SPECIFY R. D. WOOD HYDRANTS AND VALVES



Reasons? Over a million hydrants now in service throughout the world. A number like that speaks for itself, says plenty about the outstanding features of the hydrant and the excellent service and reliability you can expect with R. D. Wood products.

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R. D. WOOD COMPANY

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Established in 1803

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds)

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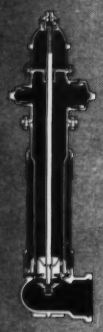
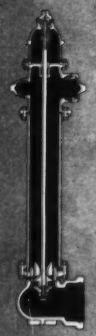
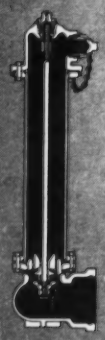


R. D. Wood Mathews Modernized Hydrant with replaceable barrel.



R. D. Wood Mathews Flange Barrel Hydrant . . . dry head construction keeps it operating in every kind of weather.



R. D. Wood Swivel Joint Hydrant can be faced in any direction.

R. D. Wood Gate Valve—bury it and forget it.

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GroutJET & GroutBULLET

two new tools for pinpoint control of grout placement!

PEERCE-ALL GROUTJET

PEERCE-ALL GROUTBULLET

Halliburton's all-new Groutjet and Groutbullet are *in service now* giving better control of grout placement in most all types of pressure grouting jobs. These advanced tools create entry points for grout placement far more efficiently than old fashioned strap-packer/slotted-pipe methods.

how they work . . .

GroutJET is made up of a series of economical shaped charge piercing units which is run on an electrical wire line into cemented grout pipe. At the desired depth, the shaped charges are ignited electrically. The controlled action of each charge pierces the pipe and cement sheath extending a short distance into the formation. Each clean, straight opening provides a predetermined entry point for the grouting solution to follow with little possibility of grout intrusion into an unwanted area. This expendable tool disintegrates in performing its job, leaving only the wire line to be pulled from the pipe.

GroutBULLET is a more economical tool containing one or more sections equipped with electrically-fired "bullets" which, when fired, pierce the grout pipe and the formation. Unlike the Groutjet, the Groutbullet may be used in uncemented pipe as well as minimum-sheath cemented pipe. This tool is run and retrieved on an electrical wire line.

* * *

Halliburton Progress in the field of pressure grouting is marked by many achievements including advanced cement and chemical grouting materials, modern placement equipment and techniques – and now the Peerce-All Groutjet and Peerce-All Groutbullet. See your Halliburton pressure grouting engineer for proven ideas on the best way to solve soil consolidation, water control, and other grouting problems.

Halliburton is fully qualified to perform any size grouting operation as a prime or sub-contractor.

PRESSURE GROUTING SERVICES

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COMPANY • DUNCAN, OKLAHOMA

City of Saskatoon installed a 72-inch sewer under a busy thoroughfare by tunneling with Armco Liner Plate. Tunnel heading advanced at rate of 13 feet per day.

Saskatoon and Memphis use new criteria for sewer installations:

PUBLIC CONVENIENCE AND GOODWILL

Sewer and utility construction in built-up areas used to mean headaches for government officials, businessmen in the area, pedestrians, drivers *and* the contractor. Here's more evidence that these headaches can now be avoided—economically—with the help of Armco Liner Plates.

The cities of Memphis, Tennessee, and Saskatoon, Saskatchewan, had similar construction plans. New sewers were to be placed under busy thoroughfares. Instead of open-cutting and placing the new sewers in a trench, both cities elected to tunnel with Armco Liner Plate. Working from shafts, they kept construction underground, out of the way. Merchants and customers were not separated by barricades. Traffic could move almost as usual, and construction went fast, unimpeded by surface installations. Taxpayers gained convenience; officials gained good will.

Steel — For strength, economy, durability

For data on Armco Liner Plates, fill in and mail the coupon. Armco Liner Plate has been proved in service. Pound for pound, it's the strongest on the market. **Armco Drainage & Metal Products, Inc., subsidiary of Armco Steel Corporation, Middletown, Ohio.**

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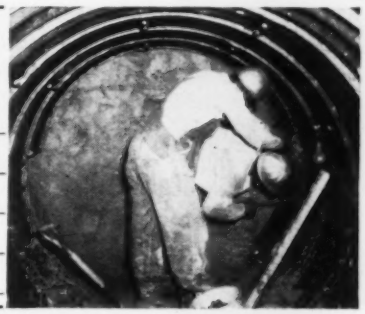


Memphis chose tunneling method over open-trenching, thus avoiding interruption to rail and auto traffic.

ARMCO Drainage & Metal Products

Special report to users of Caterpillar equipment:

CAT CATERPILLAR

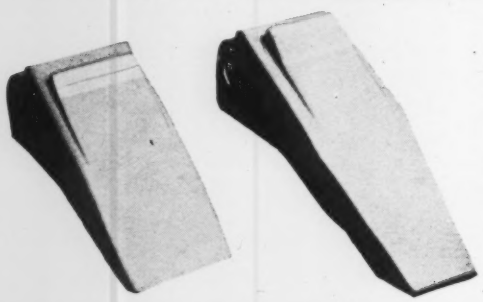
Parts you can trust
...cost less per hour

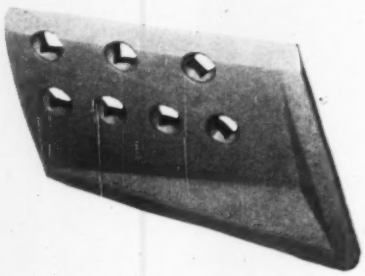
New Cat No. 8 and No. 9 Ripper Tips outproduce other brands 25 to 50% in field tests

That's the kind of news you can use—to cut costs. This newcomer to the Caterpillar line of ground-engaging tools is making a name for itself with cost-conscious users.

They're exceptionally wear-resistant—hardened to Rockwell C50 for longer wear-life under any conditions.

Check the price! Improved Cat Tips sell for about the same *or even less* than other leading brands.





They're available in two new designs. Both the short and long tips shown in the photograph are *self-sharpening* to keep their working edge until replacement. The long tip gives extra wear-life with only a slight reduction in impact strength. Low-cost, weld-on shank adapters are available for *all brands* of shanks. No need to wait—you can put these new Cat Tips on your job immediately.

In field tests the short tip was pitted against two leading brands on rippers working in caliche and cemented conglomerate beds. The Cat Tip outproduced the other brands 25-50%—representing savings of 38-54% in replacement costs.

Outstanding impact strength! One No. 9 Tip, tested in *solid* granite, took 13 smashing blows from another D9 pusher that backed up 10 feet before each charge at the stalled D9 Ripper.

And here's another money-saving newcomer—Cat's new No. 7, No. 8, No. 9 End Bits are redesigned for better digging ability. They self-sharpen as they wear away for continuing like-new performance. They're forged alloy steel and heat treated for outstanding strength and wear-resistance.

Compare other ground-engaging tool brands against the Caterpillar line. Keep machine-hour records and find out for yourself which is the best buy. Those who do, buy Caterpillar.

See your Caterpillar Dealer for the best in parts and service.

Caterpillar Tractor Co., General Offices, Peoria, Ill., U.S.A.

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ENGINEERING NEWS-RECORD

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THE CONSTRUCTION WEEK

WORK FOR MANY—Starting in December, about 1,000 architectural and engineering firms will be sharing in the $93 million Congress appropriated to pay for selection of existing buildings that will provide suitable fallout shelter areas. The survey will result in 1 million shelter areas accommodating 50 million persons throughout the nation.

SPEEDING WITH A PAVER—A Cedarapids paver equipped with a new Minneapolis-Honeywell automatic screed grade control system has placed 14-ft-wide test sections of asphaltic concrete at speeds of more than 100 ft per minute and produced a smoother surface than manual control offers. On an actual roadbuilding job in Iowa, the rig places up to 600 tons of material per hour and averages better than 4,700 tons per 12-hour day.

STILL TRYING—Florida officials succeeded in obtaining $50,000 from Congress to finance another Corps of Engineer study of a cross-state barge canal from Jacksonville west. The 140-year-old proposal looks good to Gov. Farris Bryant who places it on his list of things-to-get-started in his four-year term.

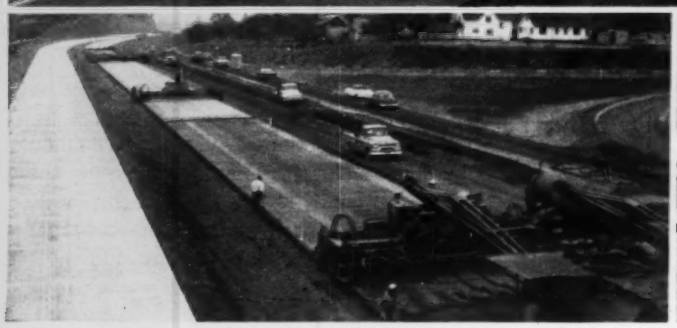
SLENDERIZING ECONOMIZER—Approval of A36 structural steel for buildings in New York City last week will provide construction savings of $10 million in public buildings and office buildings within the next five years. This prediction comes from the American Institute of Steel Construction. Leaner, lighter frames built of A36 steel cost only $1 per ton more than conventional A7 steel framing.

FINAL STRAW—San Diego's City Council fired City Manager George Bean last week thereby ending a civic controversy over his administration that reached a climax when bids on the city's sewerage construction program ran $8.2 million over a $40.9-million estimate (ENR Aug. 10, p. 23).

PAVERS ON PARADE—Industrial Asphalt, Inc., of Los Angeles has bought 20 Barber-Greene SA-40 pavers (worth $500,000) in a single order, reportedly the largest in history. Industrial is probably the largest producer of asphaltic paving mixtures in the world, operating with a batch capacity of 73 tons.

WHAT DOES IT DO TO SPUDS?—A potato peeler is blamed for settlement in a $777,000 barracks just completed at Fort Wadsworth, Staten Island, as part of the Narrows Bridge project (ENR June 29, p. 24). An investigation made when three interior walls began falling away from the ceiling revealed that hot water flowing from a broken drain under the machine had undermined the floor. The Army is considering mud-jacking the slab back into place.

more *go* for a nation on the go



Short paving train is led by two pavers riding side by side on subgrade; 12-ft lanes were later added adjacent to 24-ft lanes shown here, making 36-ft roadways.

Mechanical finisher pushes up an even 6-in roll of concrete — indication of uniform concrete and careful workmanship in a quality paving job.

The recently opened Tacoma Freeway is a vital link in the National System of Interstate and Defense Highways.

This Freeway is a six-lane controlled-access highway with two roadways of 36-ft width. Each was constructed by first placing concrete in a 24-ft lane, then returning and completing an adjacent 12-ft lane. Finishing was by mechanical finisher and burlap. Sawed joint construction was used with joints spaced every 15 ft.

The advantages of concrete construction — its smoothness, durability, skid resistance and superior night-time visibility — are augmented here by the Lone Star Air Entraining Portland Cement which was employed throughout. This modern cement enhances concrete workability, improves weathering characteristics and prolongs service life — advantages that go a long way toward making modern highways "going concerns" for many years to come.

Supervision: WASHINGTON STATE HIGHWAY DEPARTMENT. General and Paving Contractor, Ponders to 72nd Street: NORTHWEST CONSTRUCTION COMPANY, Seattle. General Contractor, 72nd to M Street: WOODWORTH COMPANY, INC., Tacoma; Paving Sub-Contractor: NORTHWEST CONSTRUCTION COMPANY, Seattle.

LONE STAR PORTLAND CEMENT

Lone Star Cement Corp.
New York 17, New York

WASHINGTON OBSERVER

- **Congress threatens to lock Cabinet door**
- **Space agency will let down-to-earth jobs**
- **Stanford electron accelerator nears start**

● **A bill to create a new Department of Urban Affairs and Housing still faces tough sledding in Congress next year.** The ease with which the multi-billion-dollar housing bill, which includes so much for cities and suburban areas, went through Congress this year has led most to believe the new department proposal would go through with the same ease. Such is not necessarily the case, and for one reason:

It is becoming more and more apparent that President Kennedy intends to name Federal Housing Chief Robert C. Weaver, a Negro, to head the department. Labor Secretary Arthur J. Goldberg is the latest to indicate that Mr. Weaver will become the first Negro Cabinet member. Southern members of Congress, most of whom voted for the big housing program, money for slum clearance, aid to depressed areas and the like, will balk at confirming a Negro for the Cabinet.

—

● **The National Aeronautics and Space Administration will let some multi-billion-dollar construction contracts over the next few months.** For example, construction is due to start by year's end on the 1,000-acre tract near Houston, Tex., that will become NASA's $60-million manned space flight control center. Modernization of the government-owned Michoud Ordnance Plant near New Orleans also will start soon. Cost of putting the plant into operation, less retooling, is estimated at $3 million. Award of a multi-billion-dollar contract to develop a three-man Apollo space capsule for the man-to-the-Moon program will be made in the next few months. This is expected to require new facilities for the company that wins the contract, with Texas a likely location.

Still to be selected by NASA is a test site for the big space boosters that will be produced at Michoud. Such a test site—where boosters can be static-tested before shipment to Cape Canaveral for firing—will require large concrete stands and laboratories. Choice of a site is expected before the year is out and also is likely to be in Texas. Construction of the new Moon-rocket launching facilities at Canaveral is expected to start in a few months. Total spending in the next several years is estimated at $3 billion to $5 billion.

—

● **First brick-and-mortar contracts for the huge Stanford University accelerator should be out for bids by the first of the year.** These will be for such support buildings as garages, machine shops and a cafeteria. Congress assured a start on construction during fiscal 1962 by appropriating $26 million out of the $114 million authorized for the entire project. Another $4.5 million was appropriated for development work in connection with the two-mile-long linear accelerator.

The university will act as prime contractor for the project instead of the Atomic Energy Commission. Over-all project head is Edward L. Ginzton, director of the Stanford Microwave Laboratory. Architect-engineer-manager of the project is the California combine, Actron-Atkinson-Blume. Construction of the giant accelerator will take about six years. About 50% of the authorized $114 million will go for highly technical and specialized services, the rest of the money for conventional construction contracts.

PROTECTION IN DEPTH

How it helps cut compensation costs

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Contractors who insure with Liberty Mutual value the aid of a Liberty loss prevention engineer. His practiced eye sees hazards that others might miss. He learns your operation, understands your job plans and problems. Briefed in advance, he can help you reduce accidents and losses, keep your compensation costs down and improve worker efficiency.

Safety engineering is but one of the many Liberty Mutual services that add up to protection in depth. This broad concept of loss control not only prevents accidents, but also helps lessen the impact of injuries that do occur. For example, Liberty's protection in depth also includes 24-hour claims service, two rehabilitation centers, a special paraplegic ward, and the availability of leading orthopedic specialists in 78 cities.

Protection in depth helped save Liberty Mutual workmen's compensation policyholders many millions of dollars last year. To find out how Liberty's protection in depth can help lower *your* costs, just call the nearest Liberty Mutual office.

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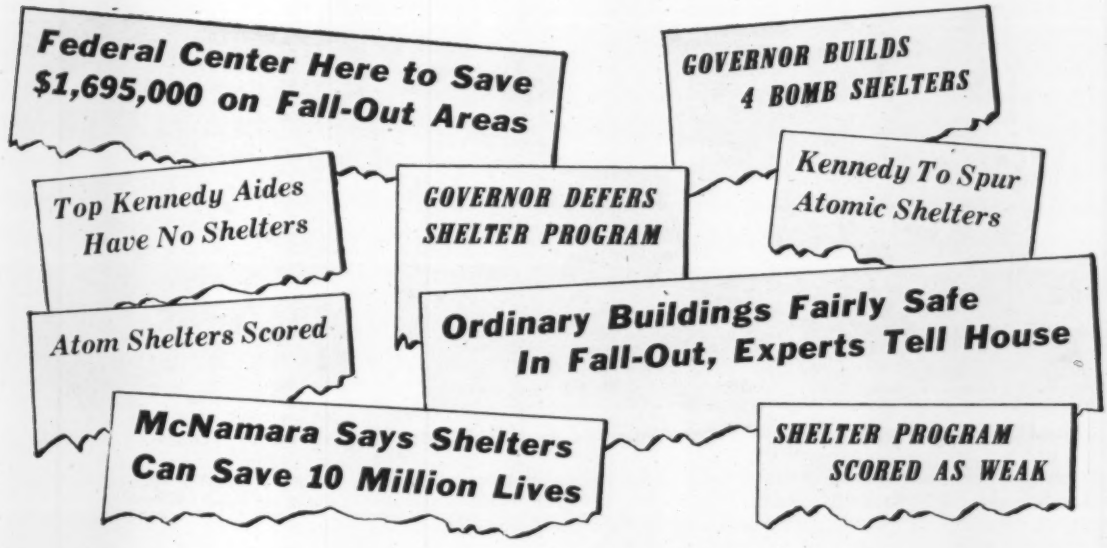

Federal Center Here to Save $1,695,000 on Fall-Out Areas
GOVERNOR BUILDS 4 BOMB SHELTERS
Top Kennedy Aides Have No Shelters
GOVERNOR DEFERS SHELTER PROGRAM
Kennedy To Spur Atomic Shelters
Atom Shelters Scored
Ordinary Buildings Fairly Safe In Fall-Out, Experts Tell House
McNamara Says Shelters Can Save 10 Million Lives
SHELTER PROGRAM SCORED AS WEAK

Shelter Program Stirs Confusion

When it comes to the nation's fall-out shelter program, contradictions reign all around.

By example, by official statement, by private conversation, government agencies and some of their spokesmen have created exquisite confusion. When called upon to provide fallout shelters, engineers, architects and contractors must sift through mostly vague—sometimes conflicting—bulletins and memorandums. And an anxious public wonders if government means what it says when the federal government contradicts itself or encounters contradiction by local officials. Some examples:

• In July, President Kennedy urged —and later got from Congress—approval of a $207-million shelter program. But in June, the government eliminated $1.7 million for shelters in the $78-million federal building scheduled for New York City next year. Then Congress appropriated $7.5 million for shelters in such facilities.

• Gov. Nelson A. Rockefeller of New York urged a compulsory shelter-building program in his state. But Gov. Robert B. Meyner whose state—New Jersey—sits in the same prime target area for nuclear assault, just last month described as a "delusion" any suggestion that fallout shelters might assure the survival of large numbers of persons.

• A family in Dayton, Ohio, planned construction of a nuclear-blast shelter. The design of their shelter passed testing at AEC's Nevada Proving Grounds. Engineers said it would withstand five times the pressure needed by a fallout shelter. But when the owner applied to county officials for a building permit, the application was denied; county engineers questioned whether it would support six feet of earth that would cover it.

• And last week, the House of Representatives' Government Operations Committee, in a critique of the Administration's civil defense program, said that private, individual shelters rate as impractical for most Americans. Unlike group shelters, they would provide too little basis for organizing post-attack recovery, the report said.

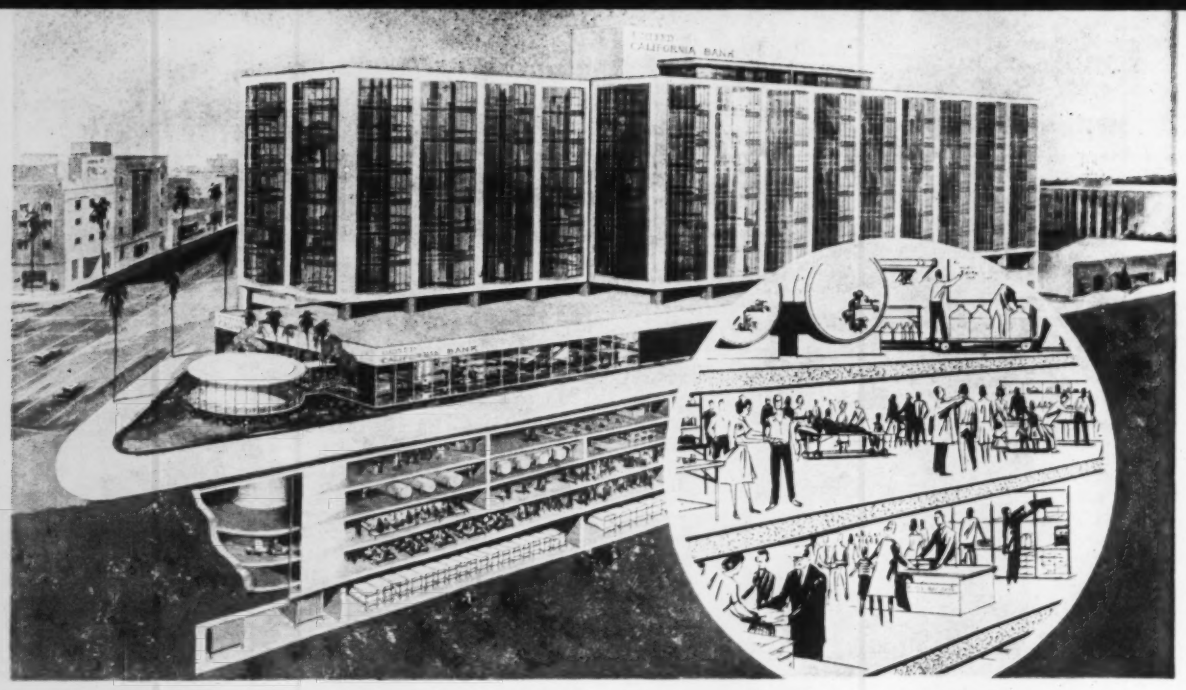
Reports of public apathy add to the confusion. Fewer than a dozen architectural and engineering firms in major cities tell ENR that they hold contracts for shelter study or design. Building department responses indicate that shelter-interest varies from region to region, with none reporting an avalanche of applications.

Officials of the Los Angeles Building and Safety Department say that in the three-week period ending September 15, they issued 120 permits for family-type shelters. Los Angeles County records only 50 permits in the county. Dallas' department issued fewer than 30; Detroit, "only a handful"; Cleveland, one; Chicago and Cook County together, four; and New York City, one. And the last went to a residential building in which Governor Rockefeller has an apartment.

So, on an official-record basis, public interest appears thin. Sales of shelters by manufacturers, however, tell a different story. Wonder Building Corp. of Chicago—only one of more than 50 shelter producers—reports sales of 5,000 units up to July 25, when President Kennedy delivered his mobilization message. Since then, orders have soared to a rate of 1,000 a week.

Mass shelters present the most complex and, at times, the most baffling problems. For information, engineers and architects must largely depend on a manual issued by the Office of Civil and Defense Mobilization—"Fallout Shelter Surveys: Guide for Architects and Engineers." (A new agency, the Office of Civil Defense in the Defense Department, just assumed OCDM's civil defense responsibilities.) From here, consultants report they must search for supplemental memorandums, revisions and additions. Some say that the local defense agencies lack the information, others report that some bits may even be handled by a federal agency other than Civil Defense.

Opinion differs on the quality of information available for mass-shelter design. The head of one of San Francisco's major architectural firms thinks too little specific information exists on design and other details. And the in-



Five-level underground garage in Los Angeles building can shelter some 13,500 persons.

formation available is too generalized. He also believes government information fails to take into full consideration the problem of geographic location. He says San Francisco's brisk ocean breezes would sweep fallout away from the city faster than in Los Angeles. There, temperature inversion traps and holds all types of impurities for days on end.

And the chief structural engineer of a nationally known firm with an office in San Francisco feels that "no one really knows what is supposed to go into a fallout shelter. He cites two conflicting reports made by city officials on the suitability of an existing tunnel for use as a shelter. One supervisor said the tunnel could be converted to a "perfect fallout shelter." Another definitely ruled out the possibility. "Who's to say who's right?" asks the engineer.

In New York City, however, a partner in one of the largest architectural-engineering firms in the country believes that the federal government does have practical answers to the problems posed by mass shelters. "The problems have been researched, and suitable answers found, but they probably rest in somebody's file drawer. Most lacking is coordination and centralization of material," says the consultant.

This opinion obtains substantial support, if only on the basis of one example. A spokesman in the Los Angeles civil defense office says that this agency does not maintain a list of manufactured shelters approved by the Office of Civil Defense. "Companies that say they have CD approval are fake," he charges.

The firms that claim such approval may not be "fake," however; New York City's Office of Civil Defense does have such a list prepared by the OCDM. It lists 51 shelter manufacturers whose shelter designs have been reviewed "from the standpoint of fallout protection." The list clearly states that the office "does not endorse any particular shelter," but the designs conform to OCDM standards, says the office. The New York City list is up to date as of April 24. Since then, other designs have been reviewed but not yet compiled in a revised list.

The new federal Office of Civil Defense also supplies additional support for the New York City consultant's belief. It says that the government did complete research studies on plans and specifications for mass shelters in apartment buildings, office buildings and manufacturing plants. But they have never been converted into "operational publications and designs," says an office spokesman. The office spokesman then refers to the shelter guide for architects and engineers, which contains details on shielding calculations, space and ventilation requirements, water, power and other related data.

Despite some lack of solid information—in Dallas the supply of just basic manuals for family shelters "could be wrapped in a table cloth"—some builders plan installation of mass shelters in their projects.

The West Coast takes the lead in this respect. In Los Angeles, a nine-story building completed last week, contains a five-level underground garage equipped and designed to shelter 4,000 persons for two weeks. The shelter's equipment includes a 40-kw emergency power generator, fuel-storage tanks, a radiation dosimeter, radio receiver, cots, food and medical supplies. Water comes from the building's regular system, but a spring bubbles into the basement area, and this water source has been retained. Adapting the garage for shelter use cost $20,000.

S. Jon Kreedman & Co., Beverly Hills contractor, plans a five-level subterranean shelter that is designed to accommodate 13,500 persons in a $13.5-million structure to be occupied by United California Bank (picture). Four of the levels ordinarily will be used for parking. The building's regular water supply will be run through a series of tanks with a capacity of 128,000 gal.

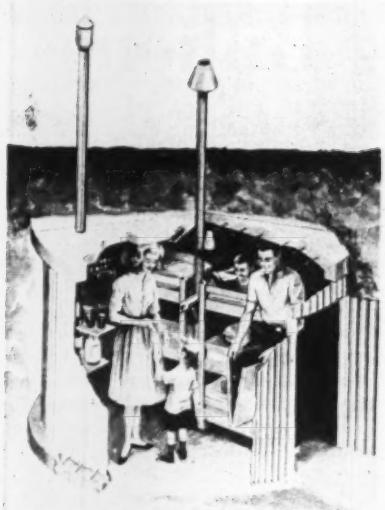
Two existing structures owned by the Kreedman company will also be equipped with shelters through modification of basement areas.

In San Francisco, a consulting engineering firm recently completed shelter plans for a group of apartment buildings in Palo Alto. The 7,200-sq-ft structure costing $70,000 to $75,000 will accommodate 500 persons. Construction is expected to start in a month.

The Palo Alto shelter will be equipped with a gasoline-powered emergency generator and a waste disposal system tied into the city sewage line. In case of failure of the city system, chemical waste disposal units also are included. A dug well will supply water.

Although the shelter apparently rates as well equipped and well planned, a member of the firm said it developed from "available information and guesswork. It will take a lot more research on the subject if more information is to be developed."

In connection with water, most of the mass shelters planned so far will get water from their own wells. A New York City architectural engineering firm conducting a study on mass shelters for a manufacturer intends to recommend driven wells for the 700-person



BELOW GROUND

One of many types of family shelters.

shelter now under consideration. And a Long Island, N. Y., residential developer will drive a well for an underground shelter in a proposed apartment-building development.

So far, the most ambitious proposal for mass shelters comes out of Livermore, Calif. The community last week voted to finance a comprehensive study aimed at providing shelter for the town's entire population of 16,000. Residents possibly may vote this year on a $2-million bond issue to finance construction. The study, however, may prove wide of either side of the mark.

Estimates of shelter costs fly thick and fast. Few authorities will swear by them because little has been done to pin prices down. A builder in the New York City metropolitan area, however, reports that an underground shelter he plans for an apartment development may cost $750,000. This unit will be designed to accommodate about 4,000 persons including tenants and residents near the project. But if built only for its basic purpose—a parking garage for tenants only—he estimates cost would be only $200,000.

And cost of a 200- to 400-person shelter manufactured by Wonder Building comes to $15,000 installed, including a generator-powered ventilation system. Other items are extra.

In the field of private family-type shelters volumes of information appear to exist; much of it contradictory, some perhaps misleading. OCDM's manual, "The Family Fallout Shelter", may contain at least one questionable plan, that for the basement shelter. Presented as a $200 do-it-yourself project, this unit is questioned by some building departments. A spokesman in New York City's Building Department expressed doubts on the unit's roof design. He said: "I'm not so sure we would consider as safe that loading of concrete blocks on wood 2x6s. I must add, however, that in the area of shelters we are not determined to administer the code as stringently as we do for structures designed for daily use."

And San Francisco authorities also consider this same structure unacceptable, since it is neither reinforced nor earthquake-proof and lacks adequate ventilation. Both cities, however, find no fault with the four other family shelters recommended, three of them underground units, one above ground.

Codes and zoning look like the biggest stumbling block to individual shelter construction. Chicago just revised its codes to cover shelters, but drew complaints by establishing a $17.50 charge for a permit.

This city, as most others, expresses concern that eventually some shelter units may eventually be serving as living areas. San Francisco and New York City include warnings on applications that shelter structures not be used for non-emergency purposes. And Chicago bars construction of above-ground shelters, which officials say readily lend themselves to auxiliary use.

On the other hand, local civil defense officials in some communities encourage shelter construction by suggesting that families equip them for normal use.

But if some officials appear to work at cross purposes with each other, manufacturers apparently agree shelters offer a promising source of business. They offer a wide variety of family units. Shelters range from a $300 do-it-yourself basement unit to a $2,500 underground structure.

A recent entry in the field, Armco Drainage & Metal Products, Inc., a subsidiary of Armco Steel Corp., says its basic $325 unit can be installed by a homeowner. An additional $300 pays for installation by a contractor. And about $1,800 will buy—installed—an underground shelter equipped with hand-operated blower, bunk racks and radio antenna. Both of these units will be sold through Armco's 200 building dealers.

Sale of shelter units may be aided by the Federal Housing Administration. The agency will allow the added cost of shelters built in new houses and will insure loans for shelters under its home improvement program.

Tax relief may also help the cause. A new Wisconsin statute exempts shelters from local property taxes. Maryland, New Hampshire and Ohio grant similar tax breaks. New York grants a state income-tax exemption of $100 for each occupant the shelter will accommodate. This allowance becomes effective for the taxpayer only if the local assessment on his property was increased because of construction of the shelter.

San Mateo Double-Decker Will Cost $65 Million

The California Toll Bridge Authority has authorized construction of a $65-million, high-level, double-decked structure to replace the San Mateo-Hayward Bridge over San Francisco Bay. Revenues from the present structure, the Dumbarton Bridge and the San Francisco-Oakland Bay Bridge will finance the new bridge.

Construction is already under way on widening 4¼ miles of the existing low-level concrete trestle from two lanes to four. Peter Kiewit Sons Co. was awarded a $13.3-million contract for this part in July. The remaining 2¼ miles of the bridge will be a double-decked steel truss; the center span over the navigation channel will have 135-ft-vertical and 500-ft horizontal clearance.

No date has been set for bids for the steel structure. The entire project is due for completion in 1964.

The present two-lane bridge, located 17 miles south of the San Francisco-Oakland Bay Bridge, was built in 1929 at a cost of $7.5 million. It has a vertical lift span that must be raised five times daily, with the number of openings expected to increase. This causes traffic to back up some 3 or 4 miles during rush hours. The new structure will eliminate this bottleneck.

The old bridge will be torn down in stages as work progresses on the new bridge. However, the lift span will not be dismantled until the new span is completed.

The three lanes provided for traffic in each direction on the new bridge are expected in increase vehicular traffic between San Mateo and Hayward from the present 10,000 to 50,000 cars a day.

Federal Agency Revises Highway Bid Price Index

The Bureau of Public Roads has revised the method of computing its highway construction price index.

The new index has a 1957-59 base, surfacing quantities will be represented by both portland cement concrete and bituminous concrete as indicators and nationwide total quantities will be used in place of per-mile quantities for the base period.

The new index will be used exclusively in BPR's report for the first quarter of 1962 and subsequent quarterly reports. Both the old and new indexes will appear in the 1961 third and fourth quarter reports.

The old index has been in use for nearly 30 years. It is based on unit prices on federal and highway work for approximately 30 major bid items. It is known widely as the "composite mile index."

Congress Votes Building Billions

Congress was acting on key construction legislation right up to adjournment time. Among the measures being considered during the last days were a multibillion-dollar foreign aid program, money bills for public works and for community health facilities.

The big new foreign aid program will give construction around the world a shot in the arm. Despite the political defeat on "backdoor spending," Congress gave President Kennedy almost everything he asked for.

The program not only is bigger in dollar totals than any approved in the recent past, but for the first time it has been put on a solid long-term basis.

The money appropriated for fiscal year 1962 totals about $4 billion. Of that about $1.1 billion is for long-term development lending—just about what the President asked for. The total amount of aid available for economic programs of one sort or another comes to between $2.3 billion and $2.4 billion, compared to $1.7 billion last year.

This does not count stepped-up lending by Export-Import Bank, World Bank, the Inter-American Bank, the International Development Association, and UN agencies.

The long-term character given the aid program is as important as the larger amounts of money from the point of view of the construction. Longer-term financial commitments mean longer-term projects that involve more construction than short-term stop-gap undertakings.

The President had asked for $8.8 billion for development lending and the power to draw such funds directly from the Treasury—so-called backdoor financing—bypassing requests to congressional appropriations committees.

Congress instead authorized a five-year, $7.2-billion, long-term development lending program. For the first time since the beginning of foreign aid, Congress this year authorized the President to make advance commitments to finance overseas development projects prior to appropriations by Congress.

Note too that Congress went along with the proposal to create a new aid agency merging the old International Cooperation Administration and the Development Loan Fund as well as some of the foreign currency lending operations of Ex-Im Bank. That should lead to better coordination, faster action in pumping out the money.

All this means unprecedented financing for construction projects of all kinds, for big long-term development programs from the Andes to the China Sea. The money is there for roads, waterworks, dams, railroads, power stations, schools, hospitals, urban development, public housing, ports.

Political tensions could put a crimp in development plans of some countries. The President is getting impatient with some so-called neutral governments that brav Moscow's line while asking for U.S. aid. Ghana's Nkrumah is an example. And Washington has begun to stall on final approval of aid money for Ghana's big Volta River project.

On the domestic front, Congress decided to increase government aid for airports, from $63 million to $75 million annually. A conference committee would resolve the issue of whether to appropriate now for a two-year or a three-year period. The House approved a two-year, $150-million outlay. The Senate Appropriations Committee recommended a three-year, $225-million total.

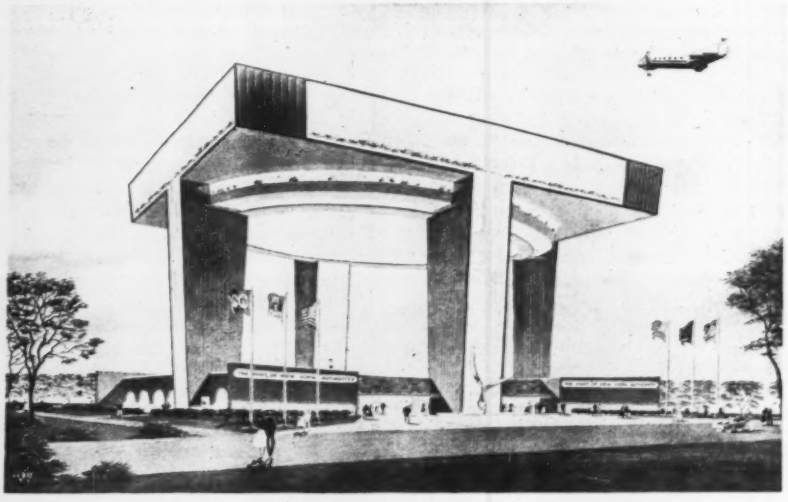
Some $310,000 needed to pay for the cost of administering the mass transit and open spaces programs was expected to be approved before the legislature closed down. This was in a supplemental appropriations bill, needed in order not to delay use of the $75 million already approved for loans to local governments to help transit problems, and $50 million for the purchase of open space for recreation and other use.

The community health facilities bill was passed last week. It provides special grants to states for nursing home construction, research into the construction of hospitals, and health research facilities. A supplemental appropriation bill was sent to Congress.

No action was taken on a bill to provide a special professional-scientific-engineering job classification for government engineers, raise pay scales, and require professional qualifications for holding down government engineering positions. Prospects for next year are uncertain.

A public works appropriation bill of more than $3.5 billion includes money for 50 new construction starts by the Corps of Engineers and six by the Bureau of Reclamation. The four largest projects, all under the Corps of Engineers are Oahe Dam, S. D., $40 million; John Day Lock and Dam, Ore.-Wash., $31 million; Eufaula Dam, Okla., $28 million; Keystone Dam, Okla., $27.5 million.

The Delaware River Compact Commission was approved by Congress. It binds New York, Pennsylvania, New Jersey, Delaware, and the federal government to a long-term program to develop the river.



Heliport Will Top Fair Exhibit

The $2.4-million Port of New York Authority exhibit at the 1964-65 New York World's Fair will be way up in the air.

Standing atop four massive tapered columns will be a 200 x 150-ft heliport, 120 ft above the ground. Immediately below the flight deck will be a glass-enclosed restaurant with a 180 x 140-ft elliptical observation deck underneath.

Main framing for the building will be a steel ring girder and huge crossing steel beams spanning between the four hollow columns housing the two stairways and elevators.

The building is scheduled for completion in January, 1964, three months before the fair opens.

Canadian Contractor Wins Contract for Montana Dam

For the first time, the Bureau of Reclamation last week awarded a contract for construction in the U.S. to a Canadian contractor.

The successful bidder, a joint venture of Emil Anderson Construction Co. Ltd., Square M Construction Ltd., and Coleman Collieries Ltd., all of Vancouver, beat out eight U.S. bidders for construction of Clark Canyon Dam, an earth and rock embankment on the Beaverhead River in Montana.

The winning figure of $3,347,402.60 was 6% under the closest competitor and 4% under the engineers' estimate. The U.S. bids topped the engineers' estimate by 1.8% to 32.2%.

The award did not result from a Bureau policy shift. It just happened to be the first time a Canadian firm came in low, the Bureau says. The Buy American Act doesn't apply to this situation.

The Corps of Engineers also has never had Canadian contractors on its domestic jobs except for jobs in boundary areas, such as the Great Lakes connecting channels and the St. Lawrence Seaway. However, it is coincidence, not policy.

It can work the other way. A New York City heavy contractor told ENR that a U.S. contractor can easily get a license to work in Canada.

Illinois Plans New Campus To Cost $150 Million

Plans for the University of Illinois' Chicago campus, unfolded last week by Skidmore, Owings and Merrill, architects, disclosed that the $150-million project will be developed in three stages.

By the fall of 1964 the initial portion of the campus will be in operation. At that time seven major buildings are expected to be completed, accommodating about 9,000 students. They include a 28-story administration building, classroom structures, student union building, engineering and science laboratories, library, lecture center and a physical plant for the entire campus.

By 1969, most of the campus is expected to be completed. It will then accommodate 20,000 students. The third stage, to be completed after 1969, will add graduate study and research facilities.

The 106-acre site, located on Chicago's near-west side, lies just south and west of the intersection of Congress Expressway and the South Expressway. It is bounded on the south by Roosevelt Road.

The Chicago Land Commission is spending $27 million to acquire and clear the site.

1885: Smoke and steam signal opening of Ohio River's first lock and dam.

1961: Mammoth tow passes through first of 19 modern 1,200-ft locks.

New Era Opens on the Ohio

Steam-powered packet boats and bowler hats were the order of the day 71 years ago when the Ohio River's first lock and dam went into service at Davis Island not far below Pittsburgh.

About 60 miles downstream, Secretary of the Army Elvis J. Stahr this week dedicated New Cumberland Lock and Dam—the first of 19 included in the billion-dollar Ohio River modernization program.

They will replace 46 obsolete locks and dams that now canalize the Ohio from Pittsburgh to its confluence with the Mississippi (ENR Jan. 12, p. 28).

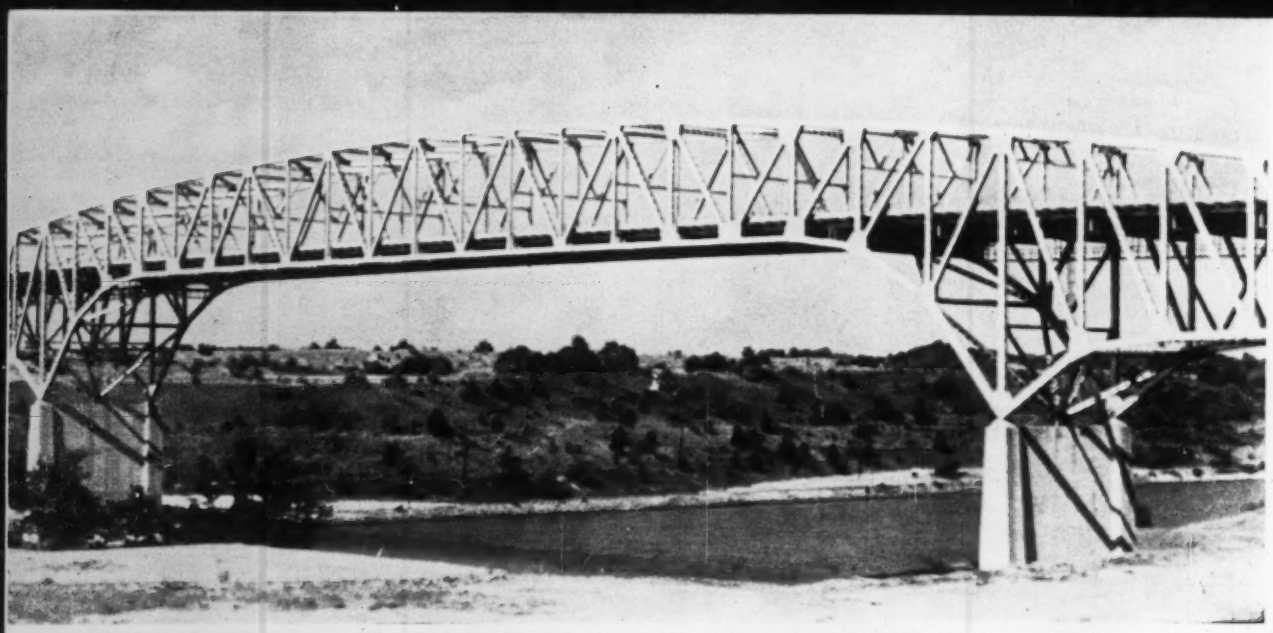
The 1,315-ft-long gated dam, which looks like a bridge in this upstream view, raises the river pool 15 ft. The lift in the locks is 22 ft.

The 1,200-ft-long main lock allows today's longer tows to pass through unbroken. The tow emerging in the photo has to be locked through in two sections at the old 600-ft locks that have been standard equipment since the early 1900s.

New Cumberland Lock and Dam eliminates three old locks and dams, two upstream and one downstream.

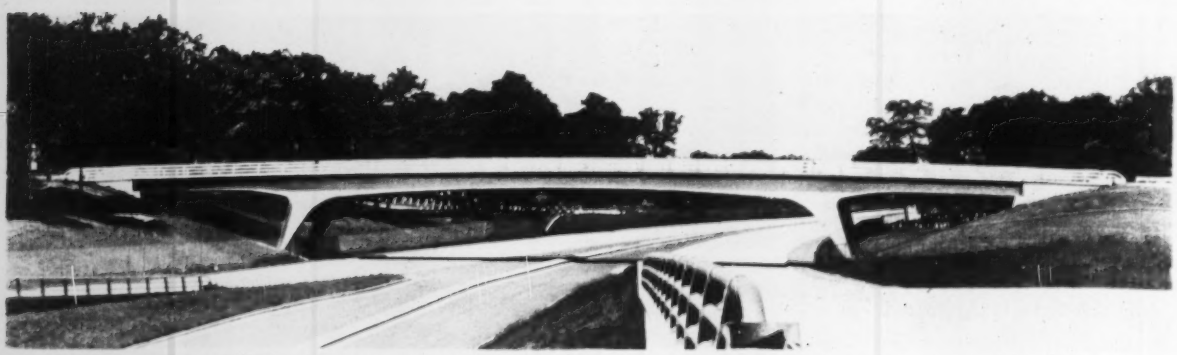
Five other big locks, now under construction on the Ohio, are Greenup, McAlpine, Pike Island, Markland, and Meldahl. Greenup is nearly done.

The Corps of Engineers' improvement program, when completed sometime in the 1970s, is expected to cut total lockage time on the Ohio from 55 hours to about 10 hours.

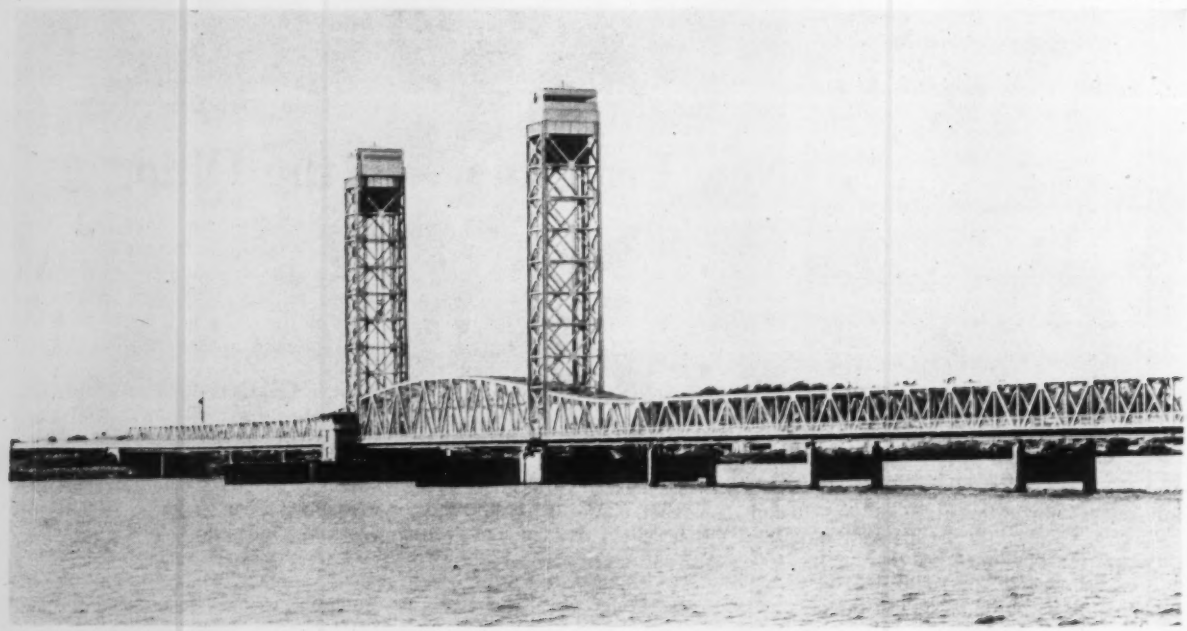


SUMMIT BRIDGE, Delaware, (Class I), designed by J. E. Greiner "blends harmoniously with the rolling countryside."

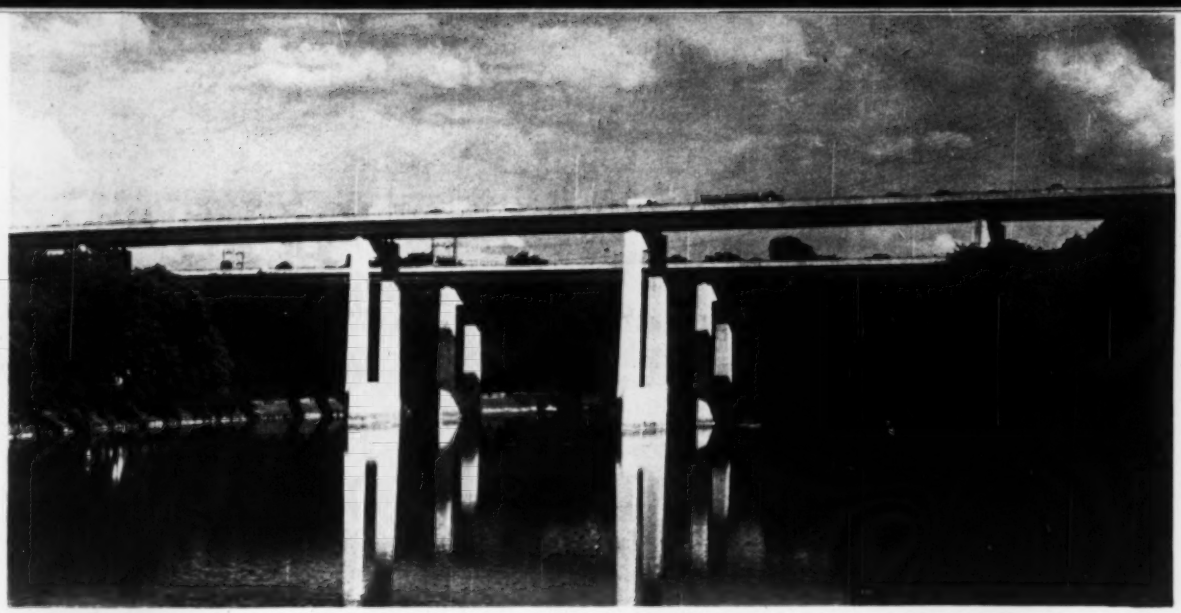
AISC Cites Most Beautiful Steel



CEMETERY ACCESS BRIDGE, Milwaukee, (Class III), by Howard, Needles, Tammen & Bergendoff, won special praise.



RIO VISTA BRIDGE, (Class IV), designed by the California Division of Highways to span the Sacramento River.



ROOSEVELT BOULEVARD BRIDGES, Philadelphia, (Class II), designed by Richardson, Gordon & Associates.

Bridges

The American Institute of Steel Construction has designated eight bridges as the most beautiful opened to traffic in 1960.

The award jury chose the top prize winners and four honorable mentions from 89 entrants located in 27 states.

The award winners and one honorable mention are pictured.

In announcing the awards, M. G. Gaskin, chairman of the award jury, said: "The jury particularly commended those bridge designs which did not intrude on their natural settings, but were handled with restraint and sensitivity."

No honorable mentions were designated in Class I, which covers bridges with spans of 400 ft or more.

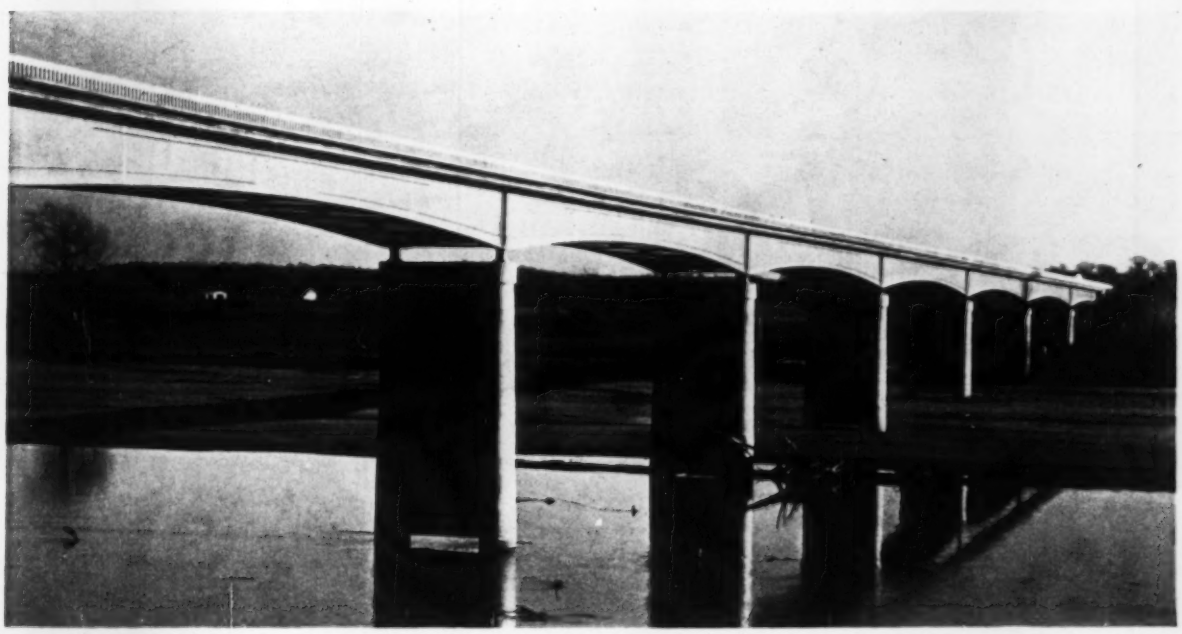
Class II covers fixed bridges with spans under 400 ft and costing more than $500,000. The Roosevelt Boulevard Bridges in Philadelphia and the Bonner Springs Bridge, Bonner Springs, Kan., are in this category. The jury also awarded an honorable mention in this class to the Mansfield Reservoir Bridge, Hollandsburg, Ind., designed by Clyde E. Williams & Associates, Inc.

The jury chose two honorable mentions in Class III, which covers bridges with spans under 400 ft, costing under $500,000. They are the North Fork Consumnes River Bridge, near Placerville, Calif., designed by El Dorado County; and the Grand River Bridge, near Harpersfield, Ohio, designed by the Ohio Department of Highways.

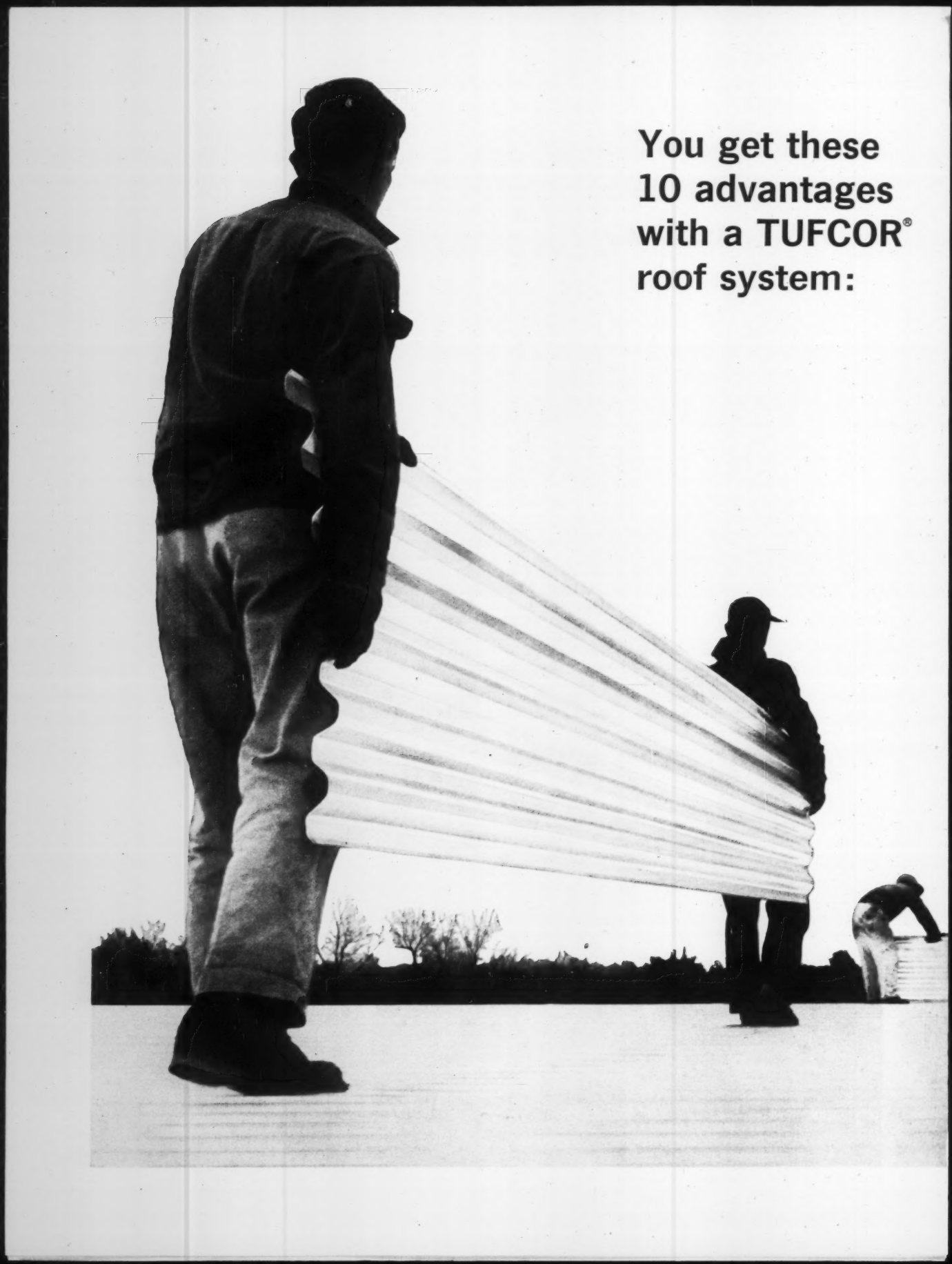
The award-winning Cemetery Access Bridge (ENR Sept. 14, p. 36) won special praise from the jury. They labeled it "the most impressive entry in the competition. The imaginative integration of the tapered legs and curving girder into one continuous rigid frame is at once graceful and exciting."

The Class IV award is for movable bridges.

Other members of the award jury were A. L. Aydelott, Memphis architect; Thomas S. Buechner, director of the Brooklyn Museum; Professor Glenn W. Holcomb of Oregon State University, president of ASCE; architect George Lindstrom of Chicago, and Geoffrey Platt, a New York architect.



BONNER SPRINGS BRIDGE, (Class II First Honorable Mention), was designed by the Kansas Highway Department.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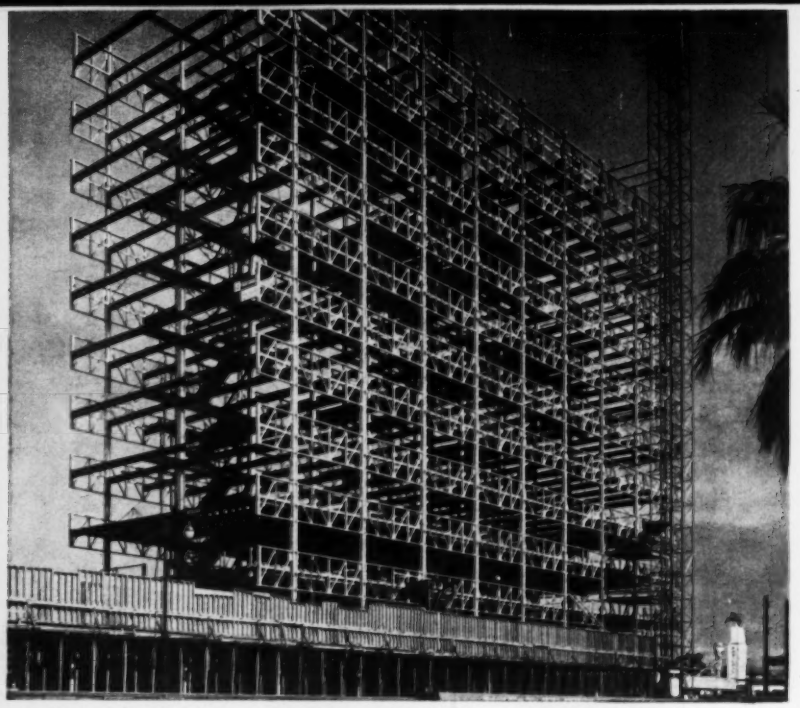
WONDERFUL WILSHIRE draws most of Los Angeles' new high-rise buildings.



Linde Medical Plaza—12 stories high in a "serene" village.

Fitting Cities to the Future:

Big Buildings Blossom

Buildings rise on Los Angeles' Wilshire Boulevard as if in a race. And they generate the feeling that one of the goals is to build bigger and higher each time.

Construction is not concentrated at any one point but scattered without apparent pattern along the 16-mile length of the boulevard. Also the type of building varies—new office buildings, new apartment houses, new churches, department stores, medical centers, banks.

In the process, Los Angeles is getting what it lacked until now—a spectacular skyline. The 458-square-mile city, until three years ago, was practically level, because of a 13-story, 150-ft building-code height limitation. In 1958, a city charter change permitted high-rise construction. Then, Los Angeles started to shoot up vertically almost as rapidly as it had been spreading horizontally.

Wilshire Boulevard, an east-west axis winding 16 miles through the heart of Los Angeles, Beverly Hills, West Los Angeles and Santa Monica, contributes most to skyline changes.

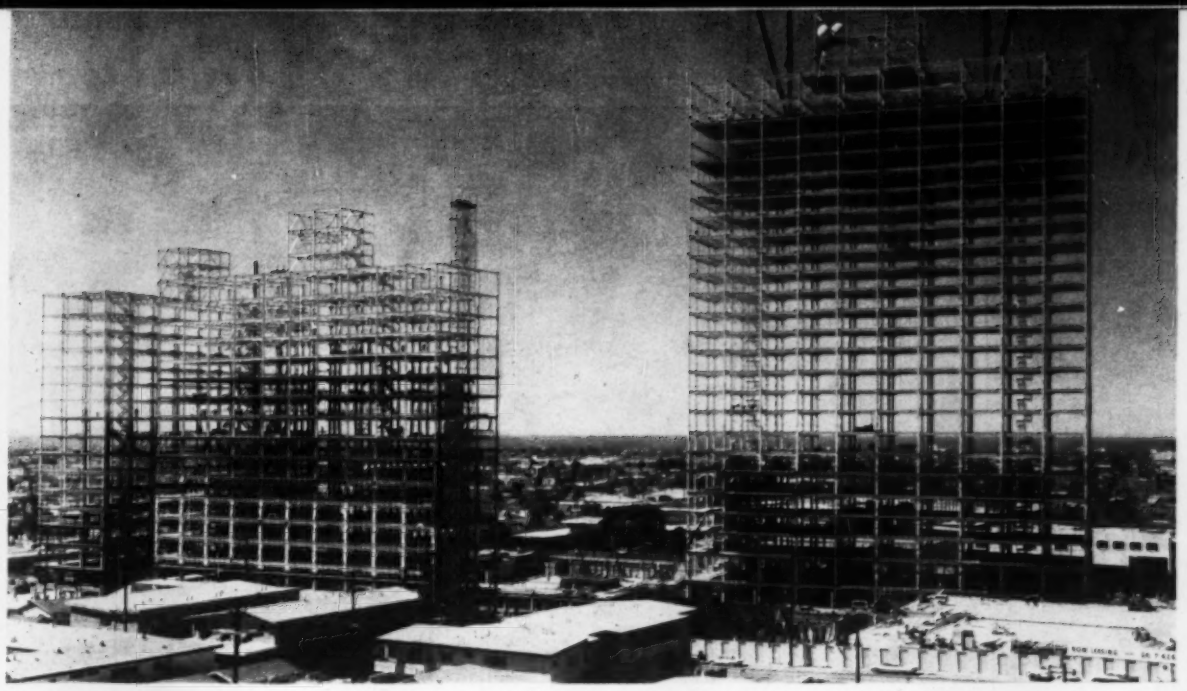
Figures on Wilshire construction become obsolete almost over night. But the latest available point up the pace:

• Already 28% of existing office space in metropolitan Los Angeles is concentrated along Wilshire. Yet, the rental market doesn't outstrip demand. Occupancy of office buildings in the Wilshire district averages 99.14% for ground floors and 97.63% for upper. Competitive space elsewhere is 96.52% occupied.

• Twenty-five major structures have been completed or started within the last year, at a cost of more than $172 million. These include 17 office buildings—six of them over 20 stories—with 4.8 million sq ft of floor area; and six apartment houses containing 995 units on 1.2 million sq ft. In addition, plans have just been announced for an 18-story office building and a 23-story apartment house.

• **Suburban trend reversed**—There's more behind Wilshire skyline changes than lifting the height limit. To understand the growth, it is necessary to be aware of what has happened to Los Angeles recently. This metropolitan area now exceeds all others in the U.S. in population increase, homebuilding and total volume of building construction. It's second in population, total employment, personal income, retail sales. It's third in manufacturing, employment, wholesale trade and bank deposits.

Since the end of World War II, the trend in Los Angeles, as well as other U.S. cities, has been a methodical march to the suburbs. Now suburban space is at a premium, a result of industrial expansion, residential development, and—most of all—population increases. The Los Angeles metropolitan



Barrington Plaza—urban renewal project with tallest apartment house west of Chicago.

Along L.A.'s Glamorous Boulevard

area population shot up 54% between 1950-60, to 6.9 million; in 1980 it's expected to reach 11.8 million. Los Angeles itself, with almost 2.6 million persons, is heading toward 4 million by 1980.

Growing scarcity of buildable land within a reasonable commuting distance, and the commuting chore, motoring for miles on traffic-choked highways, have promoted a back-to-city philosophy. More and more, Angelenos are looking for "liveability" within urban centers rather than without.

• **Downtown buildup**—Los Angeles' so-called "central city," with the 400-acre downtown business district as inner core, would like to lure big-building business to its sites. Downtown now represents a smaller proportion of overall city business activity than ever before. It has been in a state of decline since World War II. New construction has only moderately exceeded demolitions.

A combination of circumstances helped place downtown in this position: increasing traffic congestion, difficulty of land assembly in large parcels, inadequate transit system, high land costs, high taxes on improvements, a mixture of incompatible land uses, lack of convenient parking facilities.

These factors caused a 38% decline in total assessed valuations in the downtown area between 1931 and 1960. During the same period, land values there dropped 63%, while assessed values throughout the city went up more than 60%.

Worried city officials try to stem the tide, to get business back downtown. They developed a rapid transit plan, and recent legislation paves the way for a construction start. They back major downtown schemes, such as the $350-million Civic Center and $350-million Bunker Hill developments. Meanwhile, private interests plan the $25-million Occidental Life Insurance Center and a $20-million, 35-story office building. (The latter may be the city's tallest, topping the 28-story, 454-ft City Hall, record holder since 1927.) Still, the increasing impact of high-rise construction is mainly felt in other parts of the city—and in particular, along Wilshire Boulevard.

• **Sinuous magnet**—What draws builders to the boulevard? Prestige.

For 30 years, Wilshire has been acknowledged as one of the world's most coveted addresses. Its reputation acts as a magnet to retailers, apartment dwellers and corporations setting up western headquarters. At the same time—with still-available open lots and still-numerous small buildings—it offers space and opportunity for new designs, setbacks, landscaping.

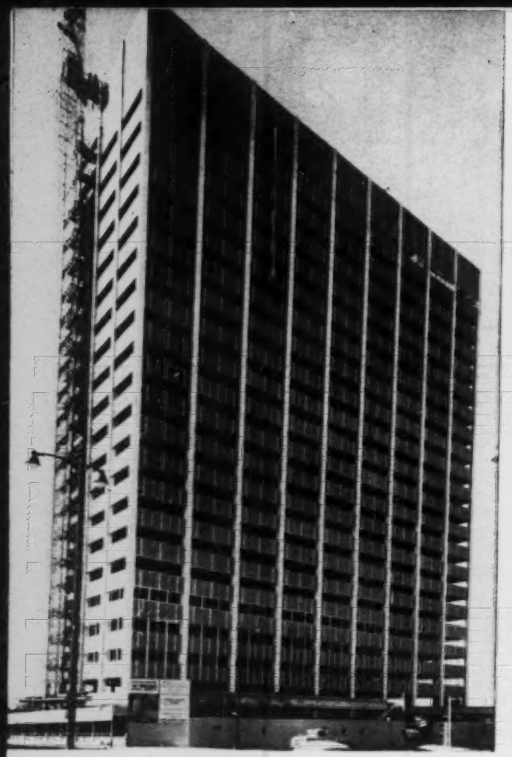
Wilshire has even drawn builders from across the continent. One, Tishman Realty & Construction Co., Inc., of New York City, has put up seven structures on the boulevard since 1950—six office buildings and one apartment house. It's on its eighth now, a high-rise apartment house in West Los Angeles. And it has plans for three additional Wilshire projects, including a twin tower, 22-story skyscraper in the Ambassador Hotel area.

"We hope to develop enough luxury apartments around the Wilshire Boulevard area to make this the luxury apartment neighborhood of Los Angeles," says Norman Tishman. "Furthermore, Los Angeles is getting more of our attention than any place other than New York City."

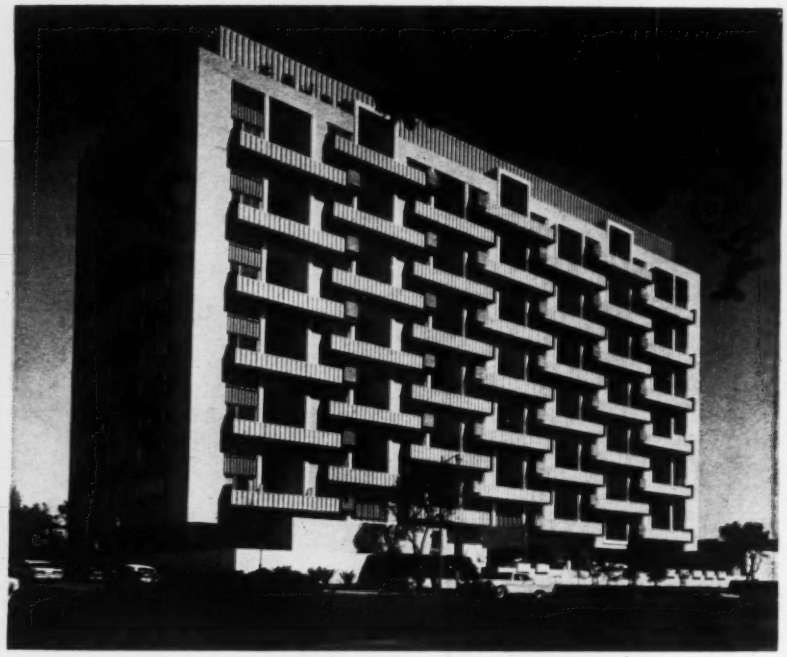
Another New York real estate-development firm, Dworman Associates, has extended activities to the boulevard. And it's stepping up plans for a series of combination office-apartment buildings that will have separate entrances for each use. Alvin Dworman believes less speculation is involved when builders put up projects in prestige locations.

"Why buy land anywhere else in Los Angeles when it can be bought on Wilshire?" Mr. Dworman asks. "Rentals and land costs are both too high in suburbia. There is now a flight back to the city. And Wilshire is among the two or three top prestige streets in the nation."

There are factors that could stunt Wilshire's skyscraper growth. Los An-



CONTENDER for city height record is 22-story Travelers Insurance Co. building.



WILSHIRE-TERRACE, like other apartment houses along Wilshire Blvd, with balconies galore, towers over its back-street neighbors. Some are more than 20 stories high.

geles adopted a complicated pattern of height limitations in 1958. And zoning can be troublesome, too. For instance, much of the boulevard is still zoned for residential use. Furthermore, both Beverly Hills and Santa Monica set their own building-height limits.

Parking and traffic access at peak periods on the heavily congested boulevard are additional ills. So one of the first steps in design of today's high-rise buildings is calculation of parking needs. City code requirements have been doubled for commercial buildings outside the central business district—to one parking space per 500 sq ft of building space. (It's still one space per 1,000 sq ft downtown.) But parking provisions must be increased even more.

• **The boom at the east end**—The boulevard starts in the downtown business district. If you follow it west toward the Ambassador Hotel, you pass the familiar old face of the tower of Bullock's Wilshire department store and the new landmarks: T-shaped West Coast Headquarters of Texaco, Inc. (217,000 sq ft of floor area), Tidewater Oil Co. Building (435,000 sq ft), International Business Machines Building (200,000 sq ft) and six Tishman office buildings (total 1.5 million sq ft).

Tishman sites start with the Wilshire-Flower (615) Building, two blocks from the boulevard's downtown beginning. Finished in September, 1960 at a cost of $15 million, it needled 22 stories (269 ft) into the skyline, provided 400,000 sq ft of floor area. Not only was it the tallest building in Los Angeles, except City Hall, but it was the first all-rental office building erected downtown since World War II.

The downtown site had construction disadvantages. Because of tight working space, excavation had to be done in stages. The contractor built foundation walls of sprayed-on concrete from ground level downward the 43-ft depth of the base; then he excavated the basements.

A noteworthy aspect of the design is the saving of a full story in height with haunched steel beams. These are deep at the column connection and shallow enough at midspan to clear horizontal ductwork. Other features include precast, exterior wall panels faced with blue mosaic tile and projecting aluminum mullions that allow thermal movements of the panels.

Farther along Wilshire stands a $3.5-million structure conceived as a showcase for reinforced concrete but also containing new ideas in high-rise construction. This is the 13-story, headquarters building for American Cement Corp., with 232,000 sq ft. It features a loadbearing, concrete X-grill facade (ENR Aug. 17, p. 46).

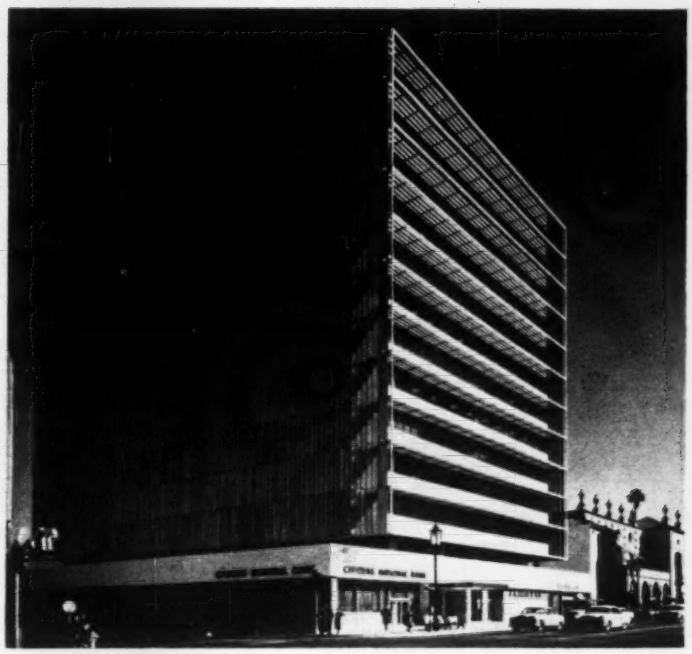
For awhile, the tallest office building in Los Angeles will be the 22-story (300-ft) Travelers Insurance Companies Building, just finished. Covering a full block, the steel-framed structure will have 453,000 sq ft of office space, 10 automatic, high-speed elevators and an adjoining parking garage for 820 cars. Its rectangular tower sports blue-gray spandrel panels with a stripe of light-blue mosaic tile down the middle. These contrast with white, precast-concrete column covers and extruded aluminum mullions.

Close by, a height rival has been under construction since April. This is 22-story (315-ft) Getty-Union Bank Building, an $11-million project of oil-man-financier J. Paul Getty. The exterior of the steel-framed structure will alternate tiers of white marble with windows and spandrel panels. Its rental area will total 270,000 sq ft; its five-level parking garage will hold 600 cars.

Work started nearby in July on another headquarters building—for the Pacific Employers Group of insurance companies. Nine stories high, it carries a $2.8-million price tag for 116,863 sq ft of floor area. It will feature a 136-ft-high, outside service core.

In the same area, the 16-story home office of Pacific Indemnity Co. has entered final construction stages. A $6.5-million project, it will provide 236,777 sq ft of office space, a multilevel garage for 414 cars and a tower of steel and architectural concrete set off by fluted aluminum strips. Also almost completed is a $4.5-million temple for Scottish Rite Masons, a full-block project of monolithic concrete. It features a facade of sculptured concrete and mosaic.

Due for a 1961 start is a nine-story, $5-million reinforced concrete project



FINS AND EYEBROWS screen 3325 Wilshire, a new 13-story office building, from the sun. It joins 16 other new office buildings on the boulevard.

BLUE-TILE FACADE is a feature of the Wilshire-Flower Building near the boulevard's eastern end.

that will be leased to U. S. Borax & Chemical Corp. as headquarters. Carter Co., Los Angeles, will be the owner-builder. It will rank as the largest of 22 office structures Carter has put up in the Wilshire area: 135 ft high with 16-ft penthouse, 275,000 sq ft of floor area, and a separate multilevel garage for 300 cars. Exterior walls will be sculptured concrete grill design; the upper portion of each grill will be window area, lower portion a black porcelain-enameled panel. Exterior columns will be integral with the grill.

• **Miracle Mile grows**—The Miracle Mile, a one-mile-long strip of Wilshire Boulevard about half way between its downtown beginning and its Pacific Ocean terminus in Santa Monica, got its name from early descriptions of its rapid development, which started in 1921. It has undergone three development phases.

The first involved widening, paving and lighting and selling businessmen on the location. It ended in 1929 with completion of 11-story Wilshire Tower, the first major building for miles around. The second phase continued through the '50s, with gradual establishment of top department stores and erection of business buildings. During this period, the westward shift of business from downtown became evident. A third phase—the skyscraper era—began this April with the completion of $10-million Lee Tower, with 358,200 sq ft of floor area.

Steel-framed Lee Tower, enclosed by blue aluminum curtain walls, rises 286 ft just beyond the eastern Wilshire entrance to the Mile. Its helistop is the city's highest. Its top floor, the 22nd, eventually will house a restaurant.

There's an Oriental touch at the west end of the Mile. There, Seibu Corp., a Japanese Company, is putting up the first major Japanese department store in the U. S. To be opened in February, the $4-million, 100,000-sq ft reinforced concrete emporium and its 400-car parking garage will blend contemporary American architecture with forms and traditions of the Far East.

The store's three-story Wilshire exterior will feature 60-ft-high, white, precast concrete, sculptured columns rising from four reflecting pools. The front wall, set back from the columns, will have floor-to-ceiling glass at the first level. A wide spandrel of vermillion mosaic tile will extend across the front at the second-floor level, contrasting with a band of shoji screen-like windows along the third floor.

• **Restricted zone**—Not long after Wilshire leaves the Mile, it passes through Beverly Hills (population 31,000). This tree-lined, 5.7-sq mi community seems content with its status symbols. These include some of the best shops in Southern California, as well as Southland headquarters for Saks Fifth Avenue and W. & J. Sloane. All stand on Wilshire frontage, which sells for $6,000 to $8,000 per sq ft. Here, too, is the $10-million Beverly Hilton Hotel, now six years old, but still the scene of construction activity as four more floors are superimposed on its two-level garage. Plans are in preparation for 266 more rooms for the hotel.

No really high-rise structures are to be found on the Beverly Hills skyline. And until it can solve parking and traffic problems, Beverly Hills remains convinced that it should hold its present four-story height limit (125 ft). However, the city council is authorized to grant variances for some eight-story construction.

Thus Gibraltar Square, a $5-million full-block development with 120,000 sq ft of floor area, is an eight-story building. It went up in two sections—a three-story headquarters for Gibraltar Savings & Loan Association, started three years ago—and the newly built steel-frame tower, just under the required maximum of 125 ft. It was enclosed with a two-tone, gray curtain wall of aluminum and glass. All tower columns are in the building interior; floors cantilever from the outermost columns.

Not far away, another block-long development which will provide considerably more floor space—600,000 sq ft—takes shape on a triangular site. Wilshire-Beverly Centre, a $17-million, three-stage project being developed by the Buckeye Construction Co., consists of offices, shops, restaurants and three-level underground parking for 1,131 cars.

(Please turn the page)

AT HEIGHT LIMIT for Beverly Hills, eight-story Gibraltar Tower is enclosed with gray aluminum and glass. The facade is cantilevered from interior columns.

The first phase, five-story Ontra Cafeteria Building opened in 1958. The second phase will be finished next spring—the $7-million Centre Building itself, eight stories plus penthouse, housing 182,500 sq ft. It's of reinforced concrete from sub-basement to second floor and steel frame from second floor to penthouse. The exterior facade, of white marble tile, will be rounded to conform with the odd-shaped lot. The Bank of America will occupy major space in the building.

The project's third phase, a new home for a Lane Bryant department store, is planned to be another eight-story office building.

The $13.5-million United California Bank Building, now under construction, will be the largest office structure in Beverly Hills. When finished in January, it will offer 600,000 sq ft in eight tower floors, mezzanine, penthouse and five sublevels (one for rental, four for parking 1,100 cars). It is 132 ft high. Framed with reinforced concrete, it has a facade of white marble and floor-to-ceiling glass. The bank's vault will be housed in a circular, marble-and-glass structure, connected to the main banking area by a covered walkway.

Other eight-story office buildings planned for Beverly Hills are the $5-million Wilshire Triangle Center, with 135,000 sq ft of floor area and an underground garage for 450 cars, and $2-million Hamilton Tower, with a facade of gray glass—windows and spandrels—framed between white columns.

• **High-rise apartments**—After Wilshire leaves Beverly Hills, it re-enters Los Angeles, winding through Westwood Village. This was once a serene little community, solely residential and sparked intellectually by the UCLA campus on the north. For 33 years most of the area rested in the hands of Janss Investment Co. But in 1955 the firm sold its key holdings and the village suddenly began to grow into a skyscraper district.

This year several steel frames sprang up along Wilshire, spurring unhappy residents to protest. What they fear most are parking and traffic problems posed by newcomers. So they fight for a change in zoning to limit height of Wilshire buildings to 12 or 13 stories. Meanwhile, big buildings go up.

One is the 20-story Wilshire-Comstock West, which projects 262 ft above Wilshire and is the city's second tallest apartment project. Tishman's eighth boulevard building, it is only half a block from Tishman's 14-story Wilshire Terrace cooperative apartment house, built in 1959. When completed early next year, the $5-million Comstock West will have 109 units, each with terrace and ranging in size from 1,300 to 2,200 sq ft. Steel-framed, it will have surrounding gardens, swimming pool and three-level underground garage for 170 cars.

Another new project is The Churchill, a 13-story 192-ft-high apartment house, slated for fall opening by Dworman Associates. Framed with reinforced concrete, it will cost $4 million for 282,200 sq ft of floor area, have 118 units with balconies and incorporate a 200-car underground garage.

Under way since June is 16-story 180-ft-high Marie Antoinette Towers, another apartment house. Cost is $3 million for 130,000 sq ft of floor area. Each of 56 units provides 1,700 sq ft and a cantilevered balcony. The building is framed with structural steel and has concrete shear and core walls, concrete floors. The exterior facade will consist of precast concrete window frames and shaped panels of integral colored concrete. Parking will be underground on three levels.

Still another steel-framed structure is the $9-million Kirkeby Center. When completed next June, it will be 15 stories (232 ft) high, with 283,640 sq ft of floor area and a five-level adjacent garage for 775 cars. Its facade will have 3-ft piers of white marble alternating with 4-ft window-and-spandrel sections.

In the next block is 12-story, 170-ft-high Linde Medical Plaza, a $7-million project. To be opened next January, it will house 130 medical and surgical suites on 250,000 sq ft and have a four-level parking structure for 501 cars. Steel framed, it will have blue mosaic-tile spandrels. Structural columns will be faced with white marble, while window walls will be aluminum framed.

Just beyond the village is the biggest new shape on the Los Angeles skyline—Barrington Plaza. It's the first urban renewal project to get under way in Los Angeles, first high-rise urban renewal project in the west, tallest residential structure west of Chicago. And it also represents the largest single loan commitment ($16.7 million) ever made by the Federal Housing Administration.

When finished early next year, this $20-million development will include three apartment houses—one 26 stories (313 ft) high and two 17 stories (220 ft) high. They'll provide 712 units, 700,000 sq ft of living space. A fourth structure is a two-story office building. All four structures will have glass and bronze-anodized aluminum curtain walls, and all extend above a two-story subterranean parking area for 824 cars. Buildings cover only 26% of the 4.8-acre site.

• **On to the Pacific**—From Westwood, Wilshire runs through Santa Monica (population 83,000) on the way to the Pacific Ocean. This seaside city, basking in smog-free air, still has a low Wilshire skyline, mostly two and three stories.

The city limits building heights in only one of two zones. For the first eight blocks away from the ocean, height is limited to 120 ft. Farther east, it's unlimited.

The boulevard's major contribution to the Santa Monica skyline is the brand new, aluminum sun-shaded building for Lawrence Welk and Union Bank. The $2-million, steel-framed structure, with a facade of ceramic tile and glass spandrels is only six-stories high but nevertheless an important landmark. It's a sign that Wilshire's new skyline is on its way west to the ocean.

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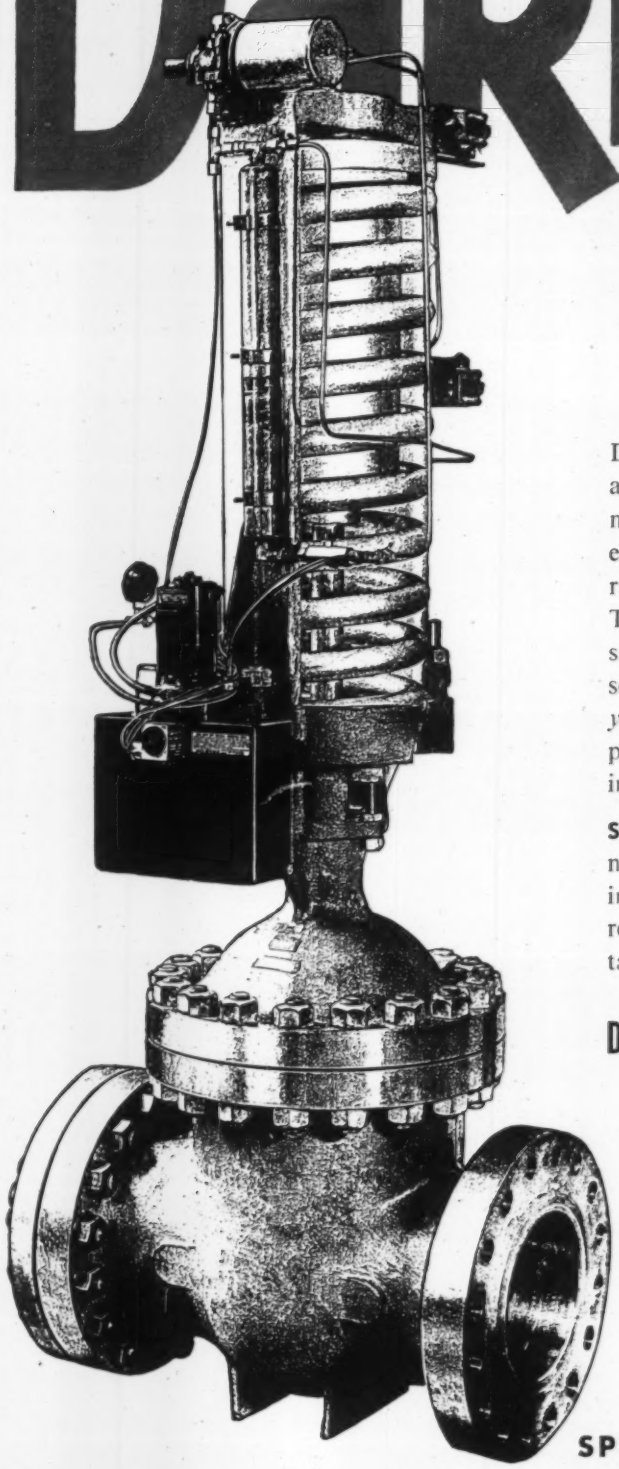

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Success Story: The Search for

By Grant Bloodgood

The Bureau of Reclamation has evaluated the results of its 15-year-old lower-cost canal-lining program and found it a success worth continuing.

Since starting the program in 1946 (ENR Feb. 6, 1947, p. 64), the Bureau has applied 43 million sq yd of lower-cost linings on some 1,300 miles of irrigation canals and saved more than $20 million.

Among his other duties as Assistant Commissioner and Chief Engineer of the Bureau of Reclamation, ***Mr. Bloodgood*** *directs the Bureau's lower-cost canal-lining program.*

• **How program works**—Four major types of linings have been placed under the program: unreinforced portland-cement concrete, buried asphalt membrane, thick compacted earth and pneumatically applied cement mortar.

The linings have produced three major benefits: lower canal-construction costs, smaller seepage losses and reduced need for drainage construction. They have made possible the development of certain irrigation projects that could not have been economically justified if expensive linings had been required.

The program has succeeded through the cooperation of water users, contractors, equipment manufacturers, and construction-materials producers, and the efforts of Bureau designers, field engineers, and laboratory research engineers. Leadership has come from a committee of ten engineers, one from each of the Bureau's seven regions and three from its Denver engineering offices.

The program is continuing to advance in laboratory and field research, field installation and field evaluation of construction and maintenance costs. The field evaluation becomes increasingly important with the passage of time, as the over-all cost of a lining must include the cost of maintenance or replacement.

Unreinforced concrete is applied by rail-guided slip-form paver-finisher.

Compacted earth lining is applied when impervious soil is handy.

Cheap Canal Linings

The committee's work has been financed by funds repaid to the government by the Bureau's irrigation projects. Thus each new project has benefited from the work financed by earlier projects and in turn has contributed to continued investigation for those following. The committee has also depended to a considerable extent on the assistance and cooperation of universities, manufacturers and contractors, other government agencies, and particularly operators and managers of irrigation districts.

The linings have undergone continued evaluation during the past 15 years. They have effectively reduced seepage and have required a minimum of maintenance. While Bureau engineers have developed construction specifications for the linings, they are continually working to improve the specifications, the materials used and the methods of construction and maintenance.

• **Unreinforced concrete**—Since 1946, about 750 miles of canal have been lined with more than 20 million sq yd of unreinforced concrete linings. It has cost an average of $2.75 a sq yd. This type of lining permits little leakage if the construction joints and grooves are filled.

Progress in construction of this lining has been achieved largely through the ingenuity of the engineers and contractors who developed rail-guided and subgrade-guided slip forms. Rail-guided slip forms, adaptable for placing of reinforced and unreinforced concrete linings, are used mainly for lining large canals. Subgrade-guided slip forms are used mainly for lining small canals and laterals. Both types of forms have made concrete linings economically feasible.

• **Asphalt membranes**—Buried asphalt membrane linings have advanced materially through industry's cooperation with the Bureau's research and development work in bituminous materials in Denver. Both sprayed-in-place asphalt and prefabricated asphaltic materials have been used.

(Story continued p. 38)

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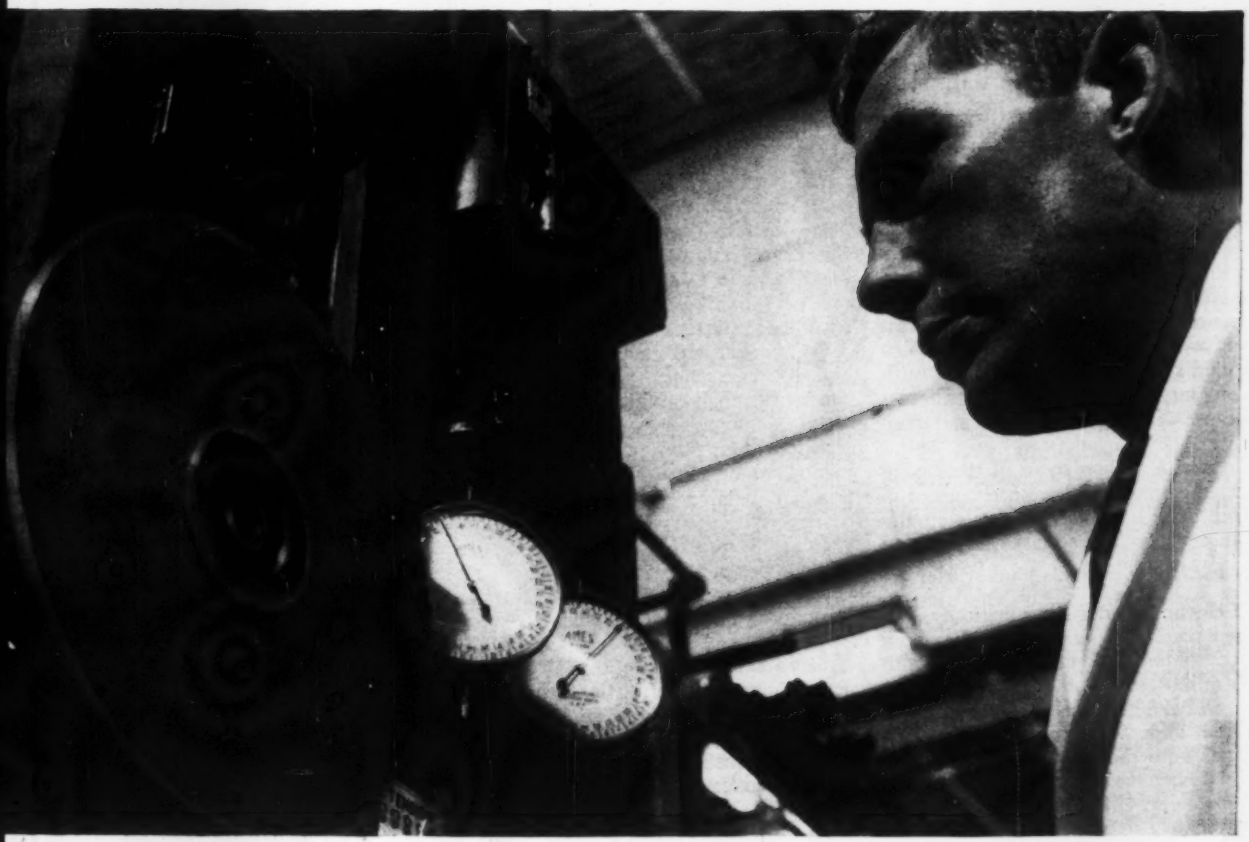

LENGTH-CODING GREEN SEAL V-BELTS TO 1/32"—NOT JUST 1/10", LIKE MOST BELTS—takes this ultra-precision machine. Only Goodyear has this type equipment, which is set by means of fine tolerance steel templates to insure accuracy. Machine readings are in the actual code numbers used to eliminate errors.

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YEAR INDUSTRIAL PRODUCTS

Sprayed-in-place membrane, the principal asphaltic lining now used, is installed by spraying catalytically-blown asphalt materials on the over-excavated subgrade. This produces a flexible film that is tough, durable and resistant to temperature effects. Placed about ¼-in. thick at a rate of about 1.5 gallons per sq yd, it is held in place and protected against sunlight, livestock, erosion, and cleaning equipment by a cover of earth or earth and gravel. The thickness of the cover depends on the size and operating characteristics of the canal.

About 220 miles of canal have been lined with more than 5 million sq yd of asphalt membrane on Bureau projects throughout the West. The linings cost about $1.05 a sq yd.

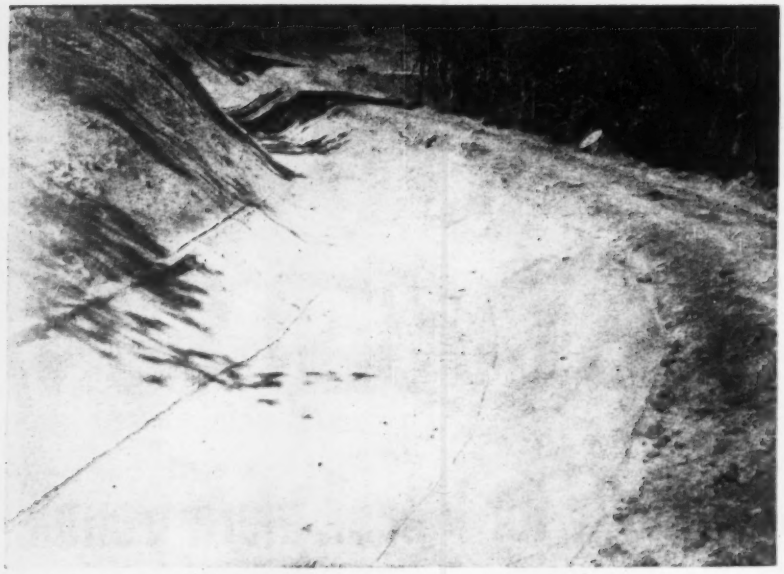
• **Compacted earth**—Thick compacted earth lining has been used extensively for medium to large canals, thanks to industry's development of equipment that can economically haul, place, and compact large quantities of earth. For this lining, the side slopes and bottom are built up with selected impervious soils compacted in horizontal layers 6 in. thick. In large canals, the layers on the side slopes are usually 8 ft wide, measured horizontally. This permits conventional large earth-moving equipment to operate. For side slopes of 2:1, the lining is 3 ft thick, measured perpendicular to the subgrade slopes. Bottom lining of large canals is usually 2 ft thick.

Field tests have shown that a thick earth lining properly constructed and compacted is highly impermeable. In certain areas where a lining is required but where expansive clays or high ground water are found, the thick earth lining may be preferable to other linings because of its greater weight and flexibility.

About 6 million sq yd of thick compacted earth lining have been placed in more than 200 miles of canals on Bureau projects. The average cost has been $0.85 a sq yd.

• **Cement mortar**—Pneumatically applied portland-cement mortar has been used to line 145 miles of canal with 1.8 million sq yd of surface. The average cost is $2.80 a sq yd. The mortar is forced under air pressure through a nozzle onto the surface of the canal or lateral in a layer usually about 1½ to 2 in. thick. Mix proportions are approximately one part of cement to 4½ parts of sand and only enough water to permit placement.

This method is well adapted to lining a canal to any desired shape or lining thickness. The small amount of construction equipment required and its extreme mobility make the process advantageous for use on small or widely scattered jobs, particularly the lining of laterals and farm ditches having frequent sharp curves and turnouts. The mortar is useful in resurfacing badly cracked and leaky but structurally sound old concrete linings.



CEMENT MORTAR LINING is well suited to small widely scattered jobs.

• **Other materials**—The four major types of lower cost linings—unreinforced concrete, buried asphalt membrane, thick compacted earth and pneumatically applied concrete—comprise about 82% of the canal linings placed on Bureau projects since inception of the lower-cost canal-lining program. The Bureau is also investigating a wide variety of other materials and processes, including asphalt macadams, asphalt-emulsion concrete, asphalt-emulsion sand mortars pneumatically placed, thin compacted earth, bentonite-soil mixtures, soil cement, and plastics. Some of these experimental linings can be installed for $1 or less a sq yd.

Bureau engineers are also investigating methods of resurfacing and repairing concrete linings, and are studying chemical and sediment sealants for new unlined canals. Also under study is the underwater application of asphalt sheets at locations where irrigation schedules will not permit water to be taken out of a canal for a sufficient period of time to allow for installation of a lining. Cast-in-place concrete pipe is also being studied as an alternative for lining.

In analyzing these new canal-lining materials and methods for potential usefulness on Reclamation projects, Bureau field engineers and laboratory researchers must determine and evaluate the answers to such questions as these: Is the lining a surface coat that erodes easily? Do sunlight, freezing, or drying damage the lining? How long will it last? What does it cost in large or small installations? Is it easy to install? Is the material toxic? Is its use limited to certain soils?

The engineers must assure themselves that a new lining selected for project use will prove economical in both first cost and maintenance cost.

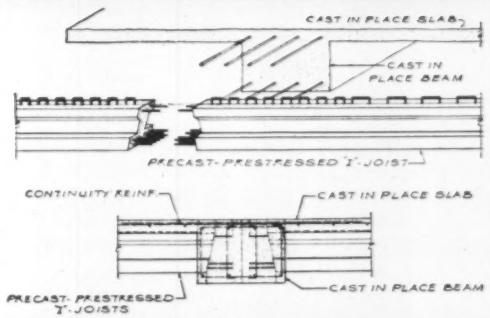
Since seepage losses must be known to evaluate the need for and effectiveness of linings, bureau engineers have investigated many methods and devices for seepage measurement, including inflow-outflow measurements, ponding, seepage meters, well permeameters, and soil-permeability tests in the field and laboratory.

A potentially valuable tool in tracing soil-water movement may be "heavy water," a radioisotope of hydrogen. In small concentrations it can be traced through soils to identify underground water movement.

Tests indicate that leaky areas of canals may also be located by use of the geophysical technique of electrical logging, widely used in the oil industry. Variations of the electrical resistance and self potential (generation of electrical current by water flowing through the soil) of materials making up the bottom and slopes of a canal are continuously measured and recorded. Where the resistance is low and self potential high, leakage may be suspected since saturation lowers the electrical resistance of earth materials.

Although the results of the lower-cost lining program are evident on virtually every Bureau project of recent years, much still needs to be done. The Bureau estimates that canal seepage can be reduced by about 1.5 million acre-ft of water annually in the foreseeable future. To achieve this goal calls for continuing research and development.

Drawing shows how the prestressed concrete I-beam sections were integrated with the floor slabs to form tee-beam sections.
Architects: Lemmon, Freeth, Haines & Jones
Structural Engineers: (original steel frame) Austin, Smith & Assoc., Inc.
General Contractors: Hawaiian Dredging & Construction Co., Ltd.
Concrete Design: (for H&W Dredge) Alfred Yee



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saves office building owner $70,000

This beautiful new office building in downtown Honolulu illustrates in an outstanding way the unique advantages and economies of prestressed concrete construction.

Originally designed for structural steel framing, it was redesigned and built with prestressed concrete at the suggestion of the contractor, the Hawaiian Dredging & Construction Co., Ltd. The result: the building was completed on schedule in 10 months at a cost $70,000 lower than the original bid!

The key to the efficiency of the design was the use of prestressed I-beam sections mass-produced at the precasting plant, transported to the construction site by truck trailer and set directly in place by crane.

To those familiar with prestressed concrete methods such economy is no news. To those planning to build and looking for ways to economize soundly, it should be welcome news indeed. If you have a structure in mind, now is the time to get the facts on prestressed concrete.

Roebling can give you the information you want. We pioneered the development of this construction method in this country... and produce the finest prestressing wire and strand available. A wealth of design data and practical experience is available to share with you. Write or call Roebling's Construction Materials Division, Trenton 2, N. J.

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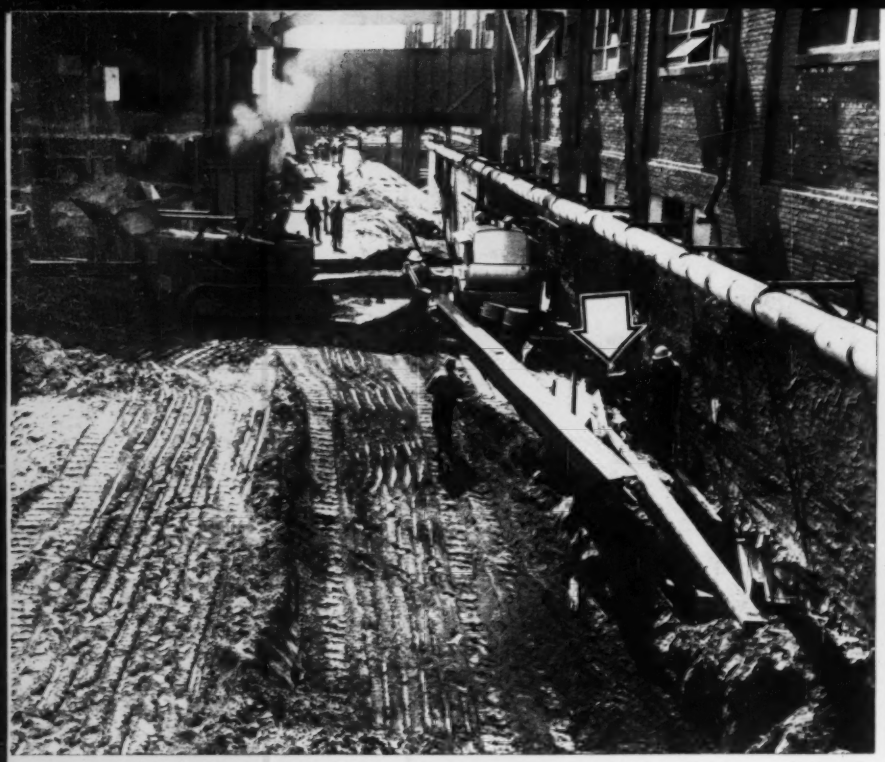


Building-hemmed site requires underpinning (arrow).

Site excavation proceeds midway

Underpinning Does Triple Job—

Plywood-formed underpinning (arrow) is new basement wall.

Underpinning takes on two additional tasks in construction of a new building for P. Ballantine & Son, Newark, N. J., brewer. Beside its primary function of shoring the walls of existing buildings, this underpinning forms gravity-type retaining walls for the new building's deep basement. These walls are laterally unsupported for 23 ft. The underpinning also acts as column pedestals, supporting new and existing columns.

• **Tight squeeze**—As part of a $10-million expansion program, Ballantine needed a new soaker building (where returned bottles are delabeled and scrubbed). Its location: a 30-ft-wide corridor plot between existing buildings.

One existing building (B15) forms the eastern boundary of the new building; two adjacent buildings (B2 and B5) form the western boundary. The 320-ft-long corridor formerly served as a boxcar storage and loading-dock area.

To maintain a width required by the mechanical equipment to be installed inside the new soaker building, the engineers had to base new columns on top of the underpinning on one side of the corridor. They chose building B15 because its masonry bearing walls could be more easily removed.

The new steel columns in this wall will carry not only the steel framing for the 65-ft-high soaker building, but also the new spandrel beams that will

through underpinning operation.

Steel posts on pads carry underpinning above column footing.

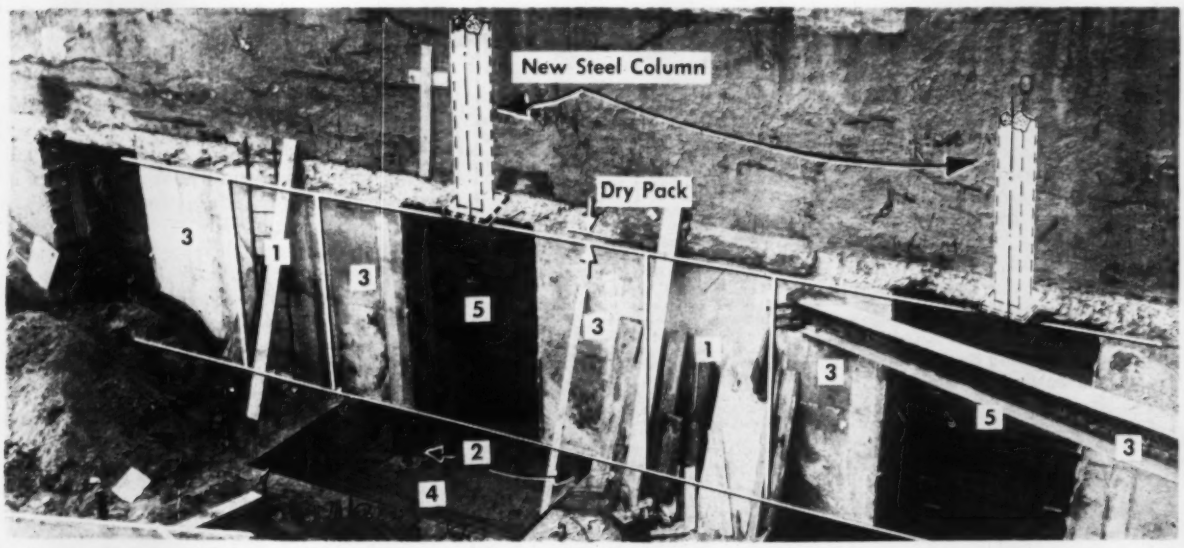
Supports Walls, Columns, Earth

carry the floor framing of Building B15. The masonry walls of B15 will be removed to provide access between buildings on the upper floors.

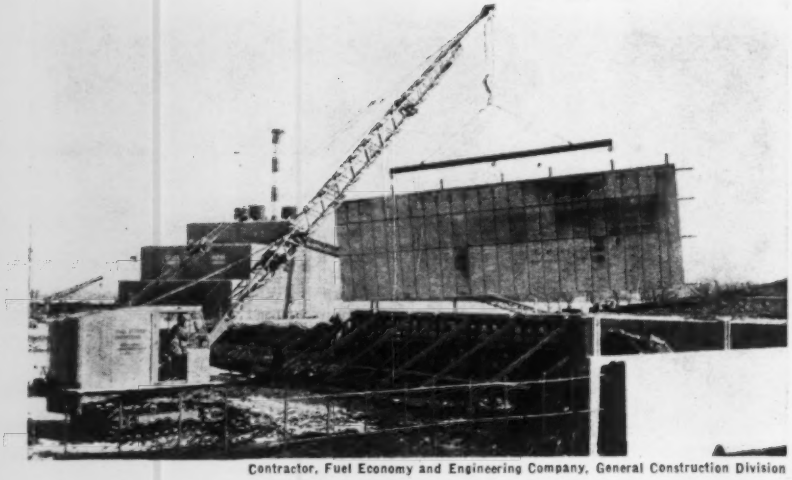
At the opposite side of the corridor, the steel columns are located outside the existing wall, with base plates at the footing level. Because no masonry wall has to be removed to accommodate new construction, providing access between buildings B2 and B5 and the new building is easier than at B15. In building B2, the engineers plan to leave wide piers and install new lintels to carry floor loads. In building B5, existing concrete piers will remain as columns after the wall is removed.

• **Underpinning procedure**—The chief problem facing the foundation contractor, Spencer, White & Prentis, Inc., of New York City, was how to cast 12 x 12-ft monolithic spread footings under the walls of B15 to carry the new columns. Here's how they solved it:

• Midway between new column locations workers excavated underpinning pits, retaining the earth with timber lagging. They concreted the pits and allowed them to set. Then they dry-



UNDERPINNING SEQUENCE: (1) underpin wall between new column pedestals; (2) install pads and posts; (3) underpin sections next to column foundations; (4) cast column footings; (5) cast pedestals.



Contractor, Fuel Economy and Engineering Company, General Construction Division

70 minutes total time to assemble, erect and strip gang section

Yes, that's right, just 70 minutes. Five men plus a crane, assembled, erected and stripped a 45 x 13 ft Symons steel-ply form gang section. The job—a rectangular fire wall at the Fox Lake Station of Interstate Power Company at Sherburn, Minnesota.

Another interesting aspect of the job is that the walls are battered from 16 inches at the bottom to eight inches at the top with joints every 45 feet. The rectangular wall is 440 x 180 ft and encloses two 55,000 barrel fuel tanks.

Symons Forms can be purchased outright or rented with purchase option. **Symons Clamp & Mfg. Co., 4265 Diversey Avenue, Dept. J-1, Chicago 39, Illinois.**

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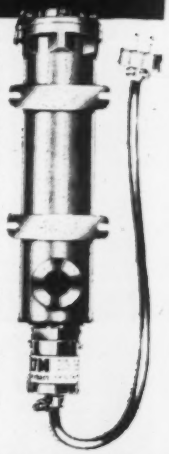

KIM HOTSTART MFG. CO.
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packed with stiff mortar mix between the bottom of the existing footing and the top of the underpinning. (See step 1, in the photo, bottom of p. 41.)

• Next they excavated pits adjacent to the newly placed underpinning on both sides of each future column pedestal.

• Two small footing pads, at opposite ends of the column spread footing, went in 1 ft below the bottom elevation of the new footing (step 2). The contractor installed four short steel posts (two per pad), extending the depth of the column footing, on top of the footing pads as temporary supports for the underpinning load. This permitted the contractor to cast the footing monolithically at a later stage.

• The contractor cast underpinning sections supported by the steel posts (step 3).

• General excavation then proceeded down to the new footing level and timber lagging went into place, horizontally supported at the rear of the previously concreted underpinning sections, adjacent to the column pedestal section. Steel rakers were installed at the mid-bay underpinning to resist lateral earth thrusts until the wall was completed.

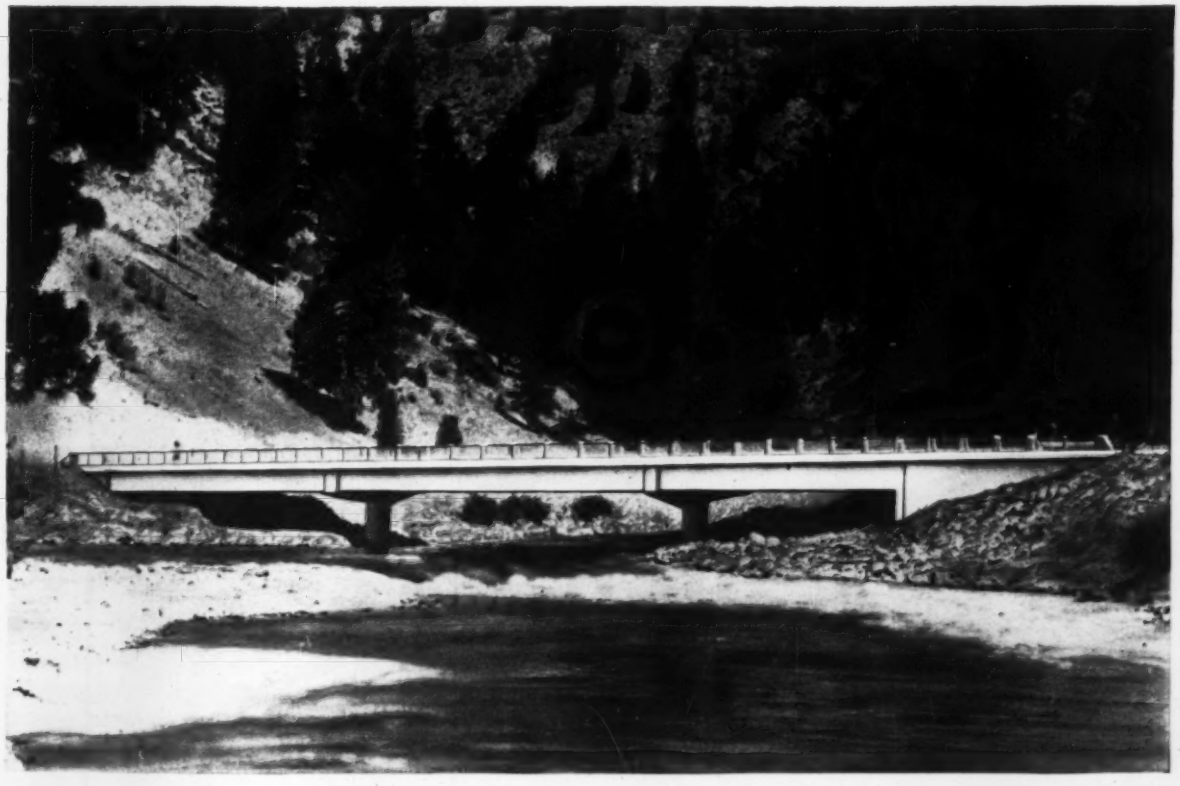
• The contractor then cast the spread footings, formed the front face of the last underpinning sections, and concreted them (steps 4 and 5). The steel posts were, of course, concreted in with the column footings.

Designed as a gravity retaining wall reinforced with light dowels from column footings, the underpinning has a sloping surface along its back wall line. This required excavation along a plane that undercut the earth beneath the existing building (see section). Plywood forms for the exposed face of the underpinning provided a smooth concrete finish for the new basement.

As a precaution against possible settling of the existing ground-floor slab-on-grade, the engineers specified insertion of grout pipes in the dry-packed space between the bottom of the existing wall footing and the top of the underpinning. But there was no need to pump grout under the slab anywhere since no settlement was recorded.

Spencer, White and Prentis used a variation of the procedure described above for building B15 at the opposite wall, where the underpinning was shallow. Steel posts were wedged between small footing pads and the bottom of the existing wall footing. Then the entire section of underpinning and column footing was ready for monolithic casting.

United Engineers & Constructors, Inc., of Philadelphia, is designer-builder for the project. Foundation contractor Spencer White & Prentis both designed and installed the triple duty underpinning.



274′ Continuous Girder Bridge over South Fork of Payette River, Boise County, Idaho
Designers: Bureau of Public Roads
Contractor: Hansen & Parr Construction Co., Spokane, Wash.

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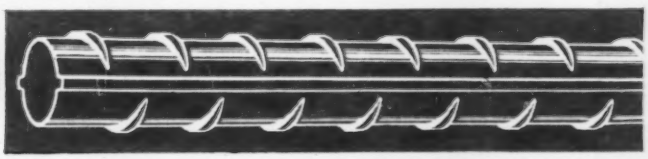

9-61

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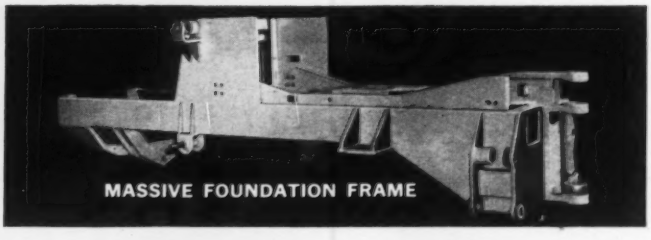

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New Product Briefs

Angle Dozer

The I-H No. 700 angle blade adjusts manually for a 27 deg right or left angle and an 8 deg tilt in either direction. Two pins control the angle; two others control tilt. It has a 92 in. x 28 in. moldboard and is built for International Harvester Tractors under 50 hp. INTERNATIONAL HARVESTER CO., 180 N. MICHIGAN AVE., CHICAGO 1, ILL.

Ripper

The Ateco HR-966 ripper for use on the Caterpillar 966 Traxcavator. Has dual cylinder hydraulic control, and conventional unit rips to depths of 14 in. with one, two or three shanks on tool beam. Special models rip to 32 in. Special shanks for bank ripping and cable laying are available. AMERICAN TRACTOR CORP., 9131 SAN LEANDRO ST., OAKLAND 3, CALIF.

Sheepsfoot Roller

The "Alley Special" a self propelled tamping roller designed to operate in close quarters. Has a 7 ft 11 in. width and its five-speed transmission works equally well in either direction to eliminate the need for turns. Propelled by a 70-hp gas or diesel engine; weighs just over 8 tons. SHOVEL SUPPLY CO., INC., 4900 HINES BLVD., DALLAS, TEX.

Asphalt Cutter

Roto-cut, a high speed rotary asphalt cutter, cuts up to 6,000 ft of asphalt an hour according to its manufacturer. The unit, a tool-steel cutting wheel set in a heavy duty yoke, can be mounted on almost any construction machine having hydraulic down-pressure. ALLIED STEEL & TRACTOR PRODUCTS, INC., 7835 BROADWAY, CLEVELAND 5, OHIO.

Powered Stud Driver

Control-A-Stud transmits energy from an explosive charge directly to a plunger, indirectly to the stud, lessening chance of richochet. For driving into hard steel, hard and soft concrete. Gas chamber controls depth, permits second shot on same stud, and eliminates powder burns on wall, the manufacturer says. SILEPS, INC., 1501 N. DAVIDSON ST., P.O. BOX 3721, CHARLOTTE 3, N.C.

Safety Markers

Safety markers consisting of a heavy 10 in. square base with interchangeable yellow plastic tubes are said to be low in cost, easy to handle and quick to set up. Tubes are made in lengths of from 1 ft to 6 ft in increments of 1 ft. Color is permanent and units are reputed to have good impact resistance. STOKES MOLDED PRODUCTS, TRENTON, N. J.

Steam Hose

Two braids of high tensile multiple strand steel wire make the Ray-Man HD pile driver steam hose almost crush-proof according to its manufacturers. For saturated steam at pressures to 200 psi and temperatures of 366 deg F. Tube is of oil-resistant neoprene, asbestos fabric and heavy gage flat steel spirals. RAYBESTOS-MANHATTAN, INC., PASSAIC, N. J.

Extension Drill

The Drill-Mate, for drilling in masonry walls and hard-to-reach places. Extensions 12 in. long, fit into high-speed, twist drill chuck, take $\frac{1}{16}$- to $\frac{3}{4}$-in. bits. BEAVER TOOL CO., P.O. BOX 65, POMPANO BEACH, FLA.

Insulating Cement

BEH No. 1 Plus high-temperature insulating cement. Effective temperature range to 2,100 F, at 3% shrinkage. Mineral-wool based, 100 lb will cover 45 sq ft at 1 in. thickness. BALDWIN-EHRET-HILL, INC., TRENTON, N.J.

Masonry Bits

Joran carbide-tipped masonry bits imported from Denmark. Diameters, $\frac{1}{4}$ to 1 in., shanks, $\frac{1}{4}$ to $\frac{1}{2}$ in., over-all lengths to 20 in. Flutes have grooves to help remove particles and keep bit from clogging and overheating. DANISH IMPORT, BOX 101, BIRMINGHAM, MICH.

Multi-fuel Diesel

Diesel engines rated from 20 to 650 hp are being manufactured to burn a variety of fuels ranging from combat gasoline through No. 2 diesel and including No. 1 diesel fuel kerosene and jet fuel. Kits are also available for conversion of standard diesel engines to multi-fuel capacities. DETROIT DIESEL ENGINE DIV., CMC 13400 W. OUTER DRIVE, DETROIT 28, MICH.

Security Fence

Radi-Matic Barrier, an antenna-like fence. Transmits an electronic wave to detect approach of intruders. Intruder does not know he has been detected. Zoned monitor pinpoints intrusion. Can be combined with other alarm systems. Works on 115 v, has built-in emergency battery. THE POWERS REGULATORY CO., 3400 OAKTON ST., SKOKIE, ILL.

Rafter Tie-Down

Dura-Brace, an 18-ga galvanized metal anchor shaped to straddle rafters and conventional roof joists. Twisted ends facilitate nailing to intersecting members. Also serves as floor joist hanger. Seat widths of $1\frac{5}{8}$, $3\frac{1}{4}$ and $3\frac{5}{8}$ in. DURATILE OF OHIO, INC., DEPT DB, 2240 HAYES AVE., FREMONT, OHIO.

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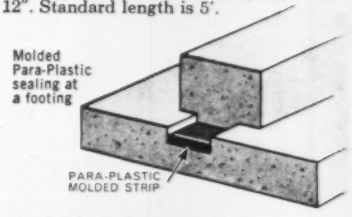
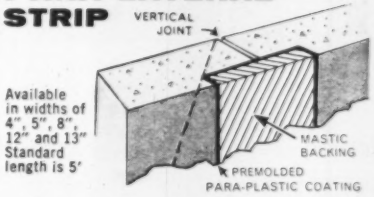
Molded Para-Plastic is a preformed elastic sealing strip composed of rubber, asphalt and other materials, molded in a rectangular shape. Properly installed, Molded Para-Plastic will bond securely to concrete to form a resilient and moisture-tight seal of the joint.

Because it incorporates sealing surfaces on all sides, Molded Para-Plastic effectively seals keyed construction joints and foundation footings. Not recommended for use when the surface is exposed or hydrostatic pressure is present. Available in thicknesses ranging from ¼" to 1" and widths from 1" to 12". Standard length is 5'.



PARA-LATERAL STRIP



Para-Lateral Strip is designed primarily for sealing vertical and sloping joints in new concrete construction, such as retaining walls, abutments, wing walls, foundation walls, tunnels, etc., where backfilling against one side requires a seal to prevent seepage through joints to the exposed side.

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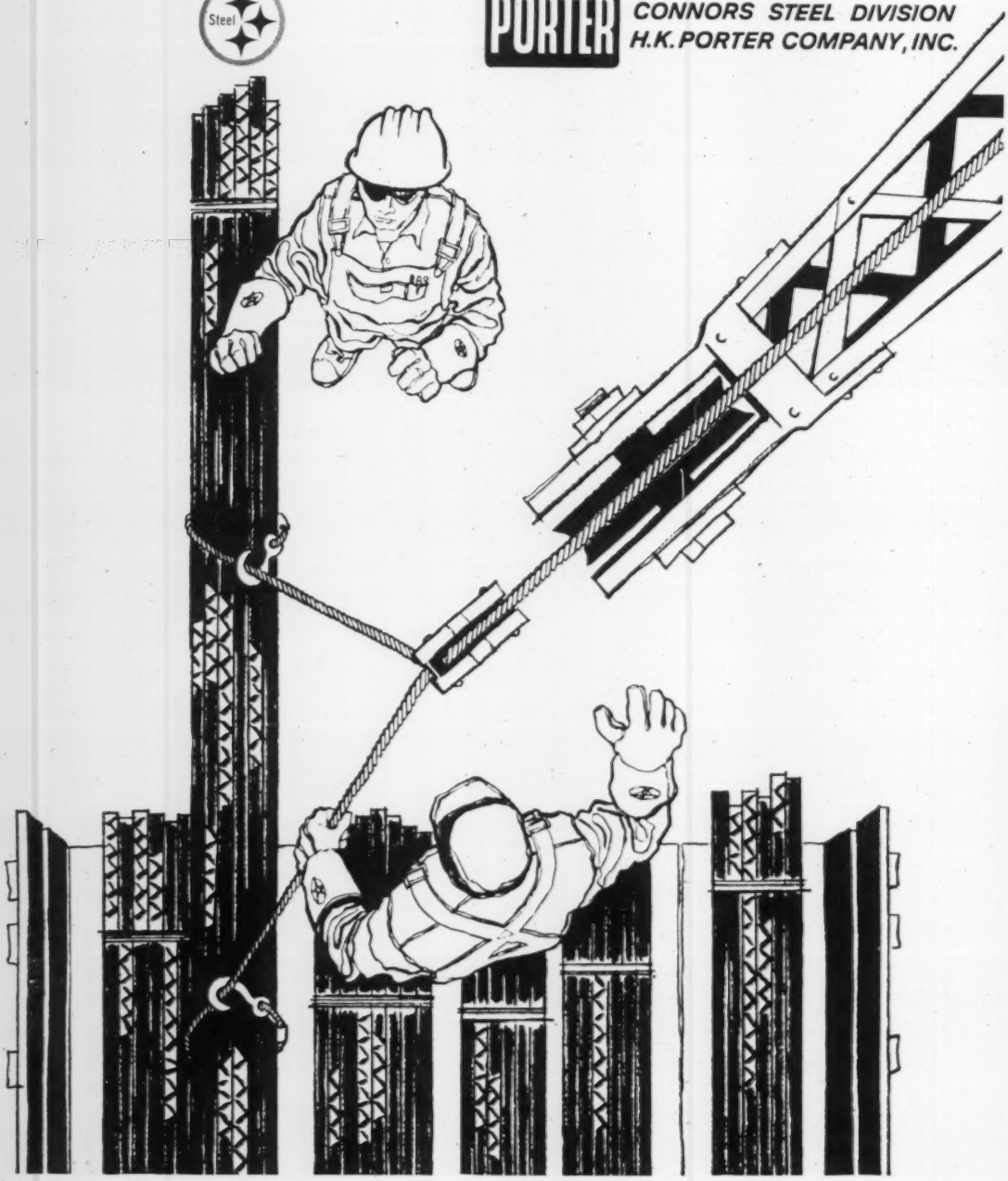


Obituaries

William N. Woodall, 60, veteran dam construction supervisor for Morrison-Knudsen Co., Inc., which he joined in 1920. After setting up his own Eagle Construction Co. in Boise, Idaho, in 1952 and operating it for eight years, he returned to Morrison-Knudsen last year.

Charles B. Bennett, 67, former Los Angeles city planning director who was responsible for the city's first comprehensive zoning ordinance, which guided the booming post-war growth of Los Angeles. In 1956 he established his own planning consultation firm and prepared plans for numerous other cities.

Potter W. Kelly, 67, city engineer of Syracuse, N. Y. He worked for the city 40 years.

Ernest Williams, 69, former chief engineer and office manager for Guy B. Panero Engineers in New York City. A mechanical engineering graduate of Cooper Union, he was associated with Reed & Stem and Warren & Wetmore, New York architects. He helped plan more than a thousand buildings throughout the world.

A. T. Anz, 78, founder of Anz Construction Co. of Asheville, N. C. A native of Italy, Mr. Anz had been employed by the city of New York and the Pennsylvania Railroad as well as the Duke Power Co. and State Highway Department in North Carolina. He was president of the Allied Construction Co. of Nashville, Tenn., before forming his own firm.

James J. Ferris, Jr., 66, an associate of the Frederick Snare Corp., New York contractors, and past president of the Jersey City, N. J. contracting firm of Stillman, Delehanty & Ferris. He was a graduate of St. Peter's College in Jersey City and studied at Stevens Institute of Technology.

Marion F. Wooten, 80, founder of Wooten-Wooten and Associates, Charlotte, N. C., architectural and engineering firm. He designed hundreds of buildings throughout the South and was a member of the National Society of Professional Engineers.

Elmer G. H. Youngman, 65, head of the Buffalo District, New York State Department of Public Works since 1955. He was responsible for much of the Niagara Frontier's vast new system of highways.

Leslie H. Allen, 80, one-time chief estimator for the Aberthaw Co. of Boston. A quantity surveyor born and educated in England, he was formerly associated with the American Concrete Institute and the Portland Cement Association in Chicago. He is author of COST ACCOUNTING ON CONSTRUCTION WORK, INDUSTRIAL HOUSING PROBLEMS and many magazine articles.

Frank L. Gernet, 80, a civil engineering graduate of Lehigh University, who had been employed by the city of Philadelphia, the Jersey Central Railroad, the Philadelphia Naval Base, Day & Zimmerman, Inc., and Stone & Webster Engineering Corp.

Walter L. Lowry, 54, dean of the Clemsen College School of Engineering in Charleston, S. C. He was graduated from the Virginia Military Institute and received a master's degree from Rensselaer Polytechnic Institute. Prior to joining the Clemsen faculty he taught at VMI and the College of William and Mary.

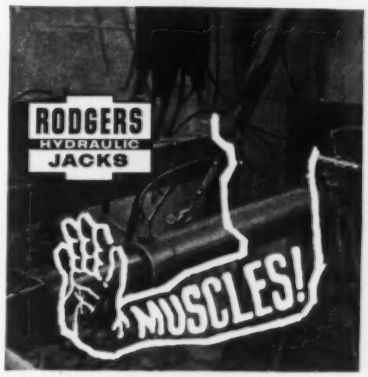
Merimac A. Robertson, 59, maintenance superintendent of the North Carolina Highway Department for 43 years.

Elmer M. Ward, 59, assistant director of the National Academy of Sciences Highway Research Board. After graduating from Iowa State College, he worked for the Iowa Highway Commission. During the war he served with the Corps of Engineers Road and Airfields Board and joined the Academy as engineer of maintenance in 1946. Mr. Ward was named "Engineer of the Year" by the Iowa Society of Professional Engineers in 1956.

Douglas M. Blum, 61, Phoenixville, Pa., architect. A graduate of the University of Pennsylvania, he was associated with the firm of Tilden, Register & Pepper and with the late Paul Cret in Philadelphia before opening his own offices in 1944.

MacMillan Clements, 52, retired president of the Clements Panel Co. of Danbury, Conn. He was inventor and manufacturer of the Clements panel—plywood laminated between sheets of stainless steel or aluminum—which was used for roof and wall enclosures in the early buildings at Thule airbase in Greenland and later on in many other prefabricated structures here and abroad.

Bruce Short, 75, a consulting engineer in Baltimore and former secretary of the Indiana Toll Road Commission.



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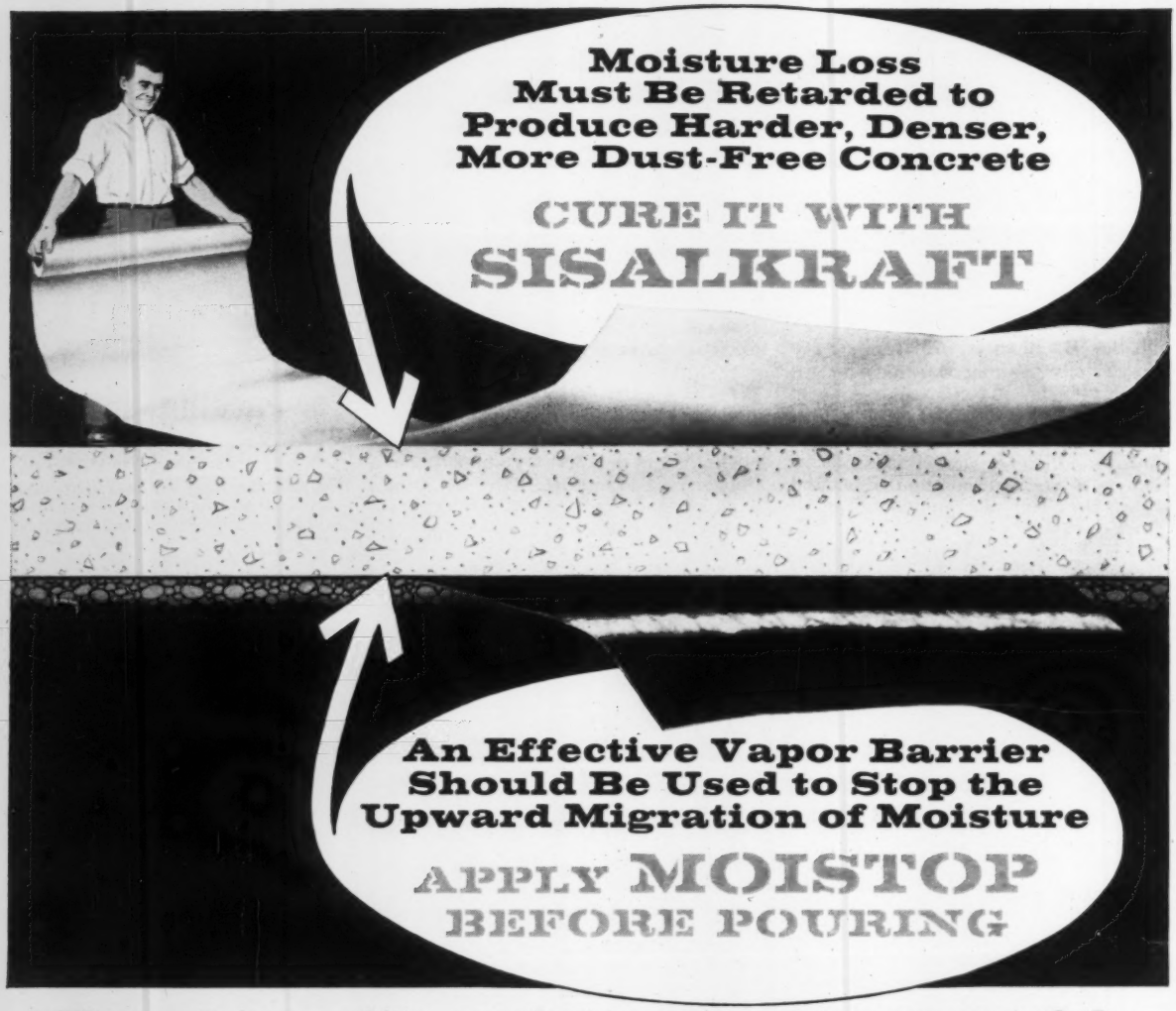

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4x12x12 in	"	154.95pkke	231.00	152.00pss	248.00†mm	149.00ll	190.00mmjvv	219.00ff	162.00	185.00	274.00	158.00 r	225.00pe	178.00	236.00wwh	281.00ss	213.00t	199.00pp	177.10*	270.00pt	180.93auqoo	185.50rr
8x12x12 in	"	309.90pe	434.00	.....	463.25†mm	280.00ll	355.00jddmm	410.00	318.75	310.00	514.00	312.00 r	452.00pe	371.25	378.00wwch	527.00ssxx	400.00t	380.00pp	235.30dd	490.00pt	325.00ausqoo	360.00rr
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8x12x12 in	"	387.40pe	491.00	303.00p	556.00†mm	.....	390.00jmmvv	465.00ff	387.75	310.00	582.00	312.00 r	225.00pwe	371.25	360.00wwhn	597.00ss	453.00t	410.00pp	159.40qq	265.00pwt	220.00qoo	281.50rr
10x12x12 in	"	.....	602.00	376.00p	.....	.....	422.00jmmvv	.....	472.50	390.00	767.00	400.00 r	.....	.....	.....	.....	607.00t	440.00pp	.....	.....	400.00qoo	405.00rr
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BRICK, common backing	M	33.25uu	36.00	27.00†l	43.50p	32.00	50.00jk	44.00tt	32.00	35.00xx	53.50pmm	34.00	$42.00uu	49.50vpe	42.00	46.00p	40.00mm	42.00t	44.00mmpp	43.00*	57.00t	48.25b	25.00rr
Straight hard	"	33.25uu	41.00	38.00jj	58.00p	34.00	49.00jk	48.00ggtt	53.00	54.00	54.00pmm	34.00	44.00	58.00vpe	55.00	.....	45.00mm	40.00t	45.50pp	43.00*	71.00t	56.30bll	60.00rr
LIME, in paper, Hyd. fin.	ton	42.50hh	35.80	38.25mm	42.00§	1.00aall	29.20jmm	32.75ptt	38.36	48.00p	38.00mm	36.26	38.00nnl	47.20bbe	48.00p	40.00p	40.00mmp	30.00t	1.00aapp	29.24	52.00bbf	39.00	34.00mm
" " Com hyd	"	35.50hh	23.40	20.87mm	34.00§	0.90alaa	29.20jmm	28.00ptt	23.32	44.00p	30.00mm	34.26	38.00nnl	40.00bbe	32.00p	38.00p	24.50	26.00t	0.80aapp	29.24	38.00bbt	22.00	36.40mm
" " pulverized	"	.....	26.33gmm	.....	.....	.....	29.20jmm	.....	26.00	46.00p	40.00mm	29.76	39.00nnl	52.00bbde	.....	.....	27.50	34.00t	1.35zaapp	31.74	1.30mbbt	13.25	34.75mm

*§ F.o.b. yard. **F.o.b. plant Stockton. *† F.o.b. yard Roxbury. *a Smooth. *b $4.50 del. *c 8 x 12 x 12 in.-6 cell. *d Pulverized hot. *e less 5% disc., 10th. *f 8 x 8 x 12. *g Lumps, $26.72. *h F.o.b. trucks, job site N.Y.C. *i 60 lb sacks. *j Truck load or over. *k $1.00 discount per M, 10 days. *m Per bb. 180 lb. processed. *n 7⅝ x 7⅝ x 12. *o Mason's double hydrated pressure. *p Truck lots. *q Provincial and Municipal tax extra (6%). *r Not used: earthquake danger. *s 8 x 16 x 12. *t less 2% disc., cash. *u Incl. Federal tax. *v Sand lime. *w 5 x 8 x 12. *x dumped. *y Chi common. *z Pebble; 80 lb sack. *aa 50 lb sack. *bb LCL. *dd 6 x 12 x 12. *ff 80% common. *gg Smooth. *hh less 25¢ disc., cash. *ii F.o.b. plant. *jj rough sales tax. *kk 3½ x 11½ x 11½. *ll less 2% disc. 10th. *mm less 2%, 10 days. *nn F.o.b., L. A. *oo less 2%, 30 days. *pp add 2% *qq 8 x 5½ x 11½. *rr 2½% disc., 10 days. *ss 5% disc., 10 days. *tt less 2% disc., 15th. *uu less 50¢/M, 10 days. *vv 4000 pcs. and over. *ww Now manufactured in perodic instead of tunnel kiln.

PAINT, ROOFING—F. O. B. CARLOAD LOTS

Item	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis K	San Francisco	Seattle	Montreal	Toronto
LEAD, red, dry	CWT	$15.10ggJO	$17.50pp	$26.00†J	$24.95†oomm	$15.25rjqqpp	$15.25†JO	$25.65†	22.50	$23.85n	$15.95r	$33.15ggool	$16.25yy	$16.25N	$23.00Jpp	$14.75ooO	$14.75mmO	$21.50mggJ	$25.65†m	$26.70mm	$13.35HO	$19.45O	$14.95
White, in oil	"	24.00ggJ	24.00	29.00†J	26.90†mmm	24.00†J	24.00†J	26.90†	23.50M	24.00	24.00rr	28.65	22.00	21.50kk	24.00J	29.75	19.00mm	24.00J	26.90	26.90mm	24.00H	26.00wtt	21.65
READY-MIXED PAINT																							
Graphite b	gal	....	3.00	3.90J	.....	.....	.....	3.32ggP	.....	3.70	....mm	4.04	3.30	.....	.....	.....	3.35mm	2.20¢EJ	.....	3.20mm	.....	5.52Dfft	5.15J
Aluminum	"	4.10	4.40	3.40J	.....	.....	.....	3.64zzgg	3.25B	5.10	....mm	3.48	4.50n	.....	.....	.....	3.90mm	2.25¢FJ	.....	4.30mm	4.19ceffJ	6.55xff	6.18J
Ferric Oxide	"		3.50	.....	.....	.....	.....	4.26qqgg	.....	.....	....mm	3.06	4.20n	.....	.....	.....	3.65mm	2.25¢GJ	.....	3.50mm	.....	5.10kff	5.95J
ROOFING SUPPLIES	square	3.15kk	3.06	2.95†mm	3.55q	3.45ukk	2.99mm	2.85q	3.00u	2.94	2.85mm	3.21mm	3.40nkk	2.85kk	$2.78	2.60xx	.....	2.90sH	2.99iiamm	2.87mm	3.34eeH	5.40	2.90
Rolls, slate surf	CWT	2.30kk	3.67	2.17i†mm	2.60q	2.75okk	2.20mm	2.10o	3.00o	2.25o	2.10ommll	2.68omm	2.40njkk	2.10hikk	1.98	1.90xxo	2.65	2.15sH	2.19hhK	1.72aaiimm	2.89heeH	4.65f	2.15aac
Asphalt felt	"	2.44	4.04	2.17i†mm	3.04q	3.15okk	2.65mmm	2.55o	3.00o	2.80o	2.55ommll	2.68omm	.....	2.55bikk	2.85	2.29o	2.55	2.15H	2.64hhK	2.59mm	.....	4.65f	2.15o
Asphalt coating	gal.	0.72kk	0.50	0.78ffmm	0.55q	48.00bbkk	0.56ymm	0.41y	0.47o	0.50fi	0.56ffmm	0.59y	0.75nykk	0.52ikk	0.68	0.52z	0.74	0.56H	0.50–0.55yK	0.46jj	0.66cc	1.60	0.63j
tar pitch	ton	49.00	54.00	48.00eemm	60.00q	57.70†kk	57.96Hmm	49.00gg	66.00hh	50.00	49.00mm	.....	s.....	50.00rkk	45.50	49.00*	49.00	55.00H	57.60K	54.00	.....	4.40uu	48.00A

*† Delivered. * Note: Red lead in oil 50% higher than white lead in oil. *• Aver. wt. approx. 425 to 550 lb drums. *a Red lead prices change frequently due to pig lead price changes. *b U.S. War Dept. Spec. 3-49A. *c ASTM Spec. D266-31. *d 80% minimum ferric oxide. *e Per 108 sf roll. *f Per 432 sq ft. *g F.o.b. yard Roxbury. *h Per roll, 65 lb. *i Net carload prices, Minneapolis and vicinity. *j 45 gal containers. *k Over 80% ferric oxide. *l Not used. *m 100 lb keg. *n F.o.b. city. *o Per 60 lb roll. *p 6-drum, 50 gal each. *q Per 90-lb roll. *r F.o.b. factory, Chicago. *s Truckload. *t Incl. Federal tax. *u Per 90-lb square. *v Per ton. *x Ready-mixed. *y 55-gal container. *z Drums. *aa 15 lb. *bb Roofers coating and cement. *cc LCL, truck delivery. *ee Asphalt pitch in 100 lb package. *ff 5-ga drums. *gg F.o.b. factory. *hh Incl. freight. *ii Per 324 sf roll. *jj Asbestos roof coating. *kk less 2% disc., 10th. *mm less 2% disc., 10 days. *oo 100 lb bbls. *pp 50 or 100 lb bags. *qq 500 lbs or more. *rr F.o.b. plant, Detroit. *ss 50 lb bbls. *tt 25 lb kegs. *uu 250 lb bbls. *xx Sept.: Rolls revised to $2.75, Asph. Felt revised to 1.71. *yy Sept. revised to $12.00. *zz Sept. revised to $2.80. *A 400 lb barrels. *B ASTM Spec. D982-49. *C 95%. *D Std. black. *e Milt. spec.: *E TTP27; *F TTY81; *G TTP31. *H less 2% disc., cash. *I Per 100 lb. *J less 1% disc., 10 days. *K add 2% sales tax. *L CL. *M 1 ton or more. *N under 500 lbs, add $1. *O 50 lb. bag.

PLASTER, VERMICULITE AND METAL BUILDING SHEETS

Item	Unit	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles	Minneapolis	New Orleans	New York	Philadelphia	Pittsburgh	St. Louis uu	San Francisco	Seattle	Montreal	Toronto
PLASTER, neat	ton	$33.00ss	$24.00	$37.00ss	$26.00	$1.45bbtt	$24.95*ss	$29.00*ss	$32.80	$29.00	$28.00ss	$30.00	$28.00tt	$34.50F	$34.00	$27.00	$27.25	$30.00nn	$30.00	$29.50ss	$42.40nn	$22.60h	$30.00
gauging	"	45.00ss	35.70	43.00ss	30.00	1.45bbtt	24.95*	45.00N	35.60	29.00	28.00ss	35.00	29.00tt	34.50F	42.00	35.00	33.00ss	31.00nn	43.00	30.50ss	45.60nn	35.60h	50.00
VERMICULITE																							
Home insul. pellets	4 cf bag	1.65ssa	0.95	1.55ss	1.40	1.55	1.75*ss	1.39ss	1.05	1.63	1.27ss	1.24E	1.25	1.65tt	1.38P	1.35	1.40ss	1.25nn	1.55	1.38ss	1.55nn	1.25h	1.47bl
plaster agg.	"	1.65ssa	.....	1.55ss	1.40	1.60	1.75*se	1.34ss	1.21	1.40	1.31ss	1.26E	1.20ktt	1.80F	1.36P	1.38	1.25ss	1.30nn	1.60	1.38ss	1.35knn	1.40h	1.43bb
concrete agg. treated	"	1.85ssa	.....	1.60ss	1.40	1.60	1.85*ss	1.45ss	1.37	1.50l	1.40ss	1.34E	1.45	1.95Fl	1.42P	1.50	1.45ss	1.40mm	1.65	1.50ss	1.85lnn	1.60h	1.66bb
PERLITE, plaster agg.	"	1.65ss	1.15	1.27ss	1.55ss	1.60	1.75ss	1.45ss	1.21	1.50ss	1.45kii	1.26	1.16	1.40S	1.15P	1.45	1.05ss	1.40nn	1.55	1.38oss	1.50k	1.15v	1.14Q
concrete agg. untreat.	"	1.65ss	1.55	1.27ssl	1.55ss	1.60	1.75ss	1.45ss	1.32	1.60ss	1.50kii	.....	1.26	1.50S	1.25P	1.40	1.05qqss	1.40nn	1.60	1.58oss	.....	1.15v	.....
BUILDING SHEET																							
Alum. flat, .100"	lb	0.469noo	0.462	0.459M	0.474	0.564x	0.469	0.459aa	0.459	0.479	0.469a	0.469	0.459	0.469	0.469	0.489aT	0.479	0.475	0.479	0.575	0.50D	43.95AH	0.4375
corr. roof, .032"	sheet	9.86nY	0.451r	9.66K	25.07AAp	33.43p	9.35	25.07p	0.463	10.89	9.35a	26.74ggyyp	8.77Z	10.09	33.43	0.2544aXAA	8.86	10.39	9.18	10.83	11.25D	12.10H	26.00ap
Stainless steel, 20 ga	CWT	61.25nxx	63.00	64.50K	62.66ddxx	58.34ee	61.00xx	58.50ooxx	60.50	65.32gg	58.35axx*	67.50E	63.27	63.61GR	59.19Y	59.21a	58.86	63.00	61.64Kmmgg	65.00K	60.10D	65.75H	73.74
28ga	"	71.25nxx	71.25	73.00K	72.67dd	67.84ee	71.25xx	68.00ooxx	83.50	73.57gg	67.85axx*	76.25E	73.27	69.61ffG	68.69Y	68.72	68.36	74.50pp	71.64ygg	77.25K	69.60D	.....	86.52

*‡ truckiots, delivered *† fob warehouse. *• ob city. *a delivered. *b ½" O.D. *c ⅝" O.D. *d per sf. *e 34" x 60" sheet. *f per 100 ft. *g 5 tons & up; cold roll, anneal & pickled 2B finish. *h incl. Federal tax. *i add 25¢ for pint of additive. *j 1100 & 3003 alloy, mill finish. *k bag of 3 cu ft. * treated with air entraining agent. *m 2-10M ft. *n fob mill fr equalized with nearest stocking competitor. *o 250 sacks or more. *p 100 sf ft. *r per lb. *s 30 lb bag. *t 36" x 108";-10.81 lb/sh; 48" x 144"; 21.7 lb/sh. *u 19.31 lb/sh. *v fob plant. *w 48 x 144" *x 0.11"th. *y 27 gauge. *aa 16M lb & up. *bb Per 50 lb bag. *dd add $1.00 cwt boxing. *ee 5 tons & up. *gg add $2/cwt boxing; $0.75/cwt on skids. *hh Theoretical wt for 48" x 96": 60.4-lb per sh. *ii 300-bag lots *jj 100-lb bag. *mm Theoretical wt; 19.7-lb per sh. *nn 2% cash. *oo skid packed. *pp type 304 *qq Philadelphia and suburbs. *rr less 2% disc. 15 days. *ss less 2% disc. 10 days. *tt less 2% disc. 10th. *uu add 2% sales tax. *vv Type N. *xx less ½% disc. 10 days. *yy .021 ga. *zz .061" th. *A Per 100 lb. *C 15M lb. *D less ½% for cash. *E Quantity differential. *F less 5% disc. 10th. *G less ½% disc. 10th. *H Fed. tax exempt. *K less ½% 10 days. *L 5% disc. 30 days. *M 3003: .452 for 1100. *N less 2%, 15th mo. *O less $2, cash & carry. *P less 2½, 15 days. *Q per ton. *R revised. *S add .10/bag under 200 bags. *T 5000# quantity on 4000# skids. *U 30 Msf quantity; $0.245 in 10 Msf quantity. *X per sq ft. *Y per sheet. *Z 6,000 lb or over. *AA 30,000 sf or over

Labor and Materials Prices

Monthly Market Quotations by ENR Field Reporters

See following ENR issues for OTHER PRICES.

- Cement Aggregate, Ready Mixed Concrete Asphalt: Last, Sep. 7; Next, Oct. 5.
- Wood Products, Glass, Explosives, Chemical: Last, Sep. 21; Next, Oct. 19.
- Iron & Steel Products, Pipe: Last, Sep. 14; Next, Oct. 12.

HOURLY WAGE RATES—Base rate + fringe benefits

Classification	Atlanta $+¢	Baltimore $+¢	Birmingham $+¢	Boston $+¢	Chicago $+¢	Cincinnati $+¢	Cleveland $+¢	Dallas $+¢	Denver $+¢	Detroit $+¢	Kansas City $+¢	Los Angeles $+¢	Minneapolis $+¢	New Orleans $+¢	New York $+¢	Philadelphia $+¢	Pittsburgh $+¢	St. Louis $+¢	San Francisco $+¢	Seattle $+¢	Montreal $+¢	Toronto $+¢
COMMON LABOR																						
Building	2.00	2.30+7½	2.10	2.90+10	3.225+7½	2.90	3.52	1.95	2.47	3.00+34	2.705	3.26+10	3.00	1.925	3.65+292	2.70+15	2.85+20	3.025+10	3.225+10	3.00+25	1.75+4	2.05+8
Heavy Const.	2.00	2.30+7½	2.05	2.75+10	3.225+7½	3.025	3.435	1.95	2.42	3.00+34	2.755	3.26+10	2.98	2.00	3.65+292	2.70+15	2.715+20	3.025+10	3.225+10	3.00+25	1.75+4	2.05+8
SKILLED BUILDING TRADES																						
Bricklayers	4.05	4.10+15	4.05	4.20+30	4.40+10	4.125+14	4.085+25	4.15	4.15	4.09+33	4.20	4.35+25	4.025+15	3.775+7½	5.20+62	4.40+17	4.60+20	4.25+33	4.40+42½	4.30+30	2.55+6	3.20+13
Carpenters	3.45	3.725+7½	3.40	3.85+10	4.08+20	3.95	4.11+15	3.55	3.80c	3.75+47	3.75	4.00+20	3.68+15	3.35+075	4.75+38	4.00+20	4.225+20	3.975+104	3.95+36	3.53+20	2.35+5	2.95+12
Struct. Iron Workers	3.70+7½	4.10+20	3.77+13	4.26+20	4.55+16	4.025+105	4.16+10	3.675+8	3.81+10	4.10+27½	3.90	4.50+3.55	3.77+15	3.65+10	5.05+706	4.60+23	4.375+29	3.975+104	4.50+35	3.92+10	2.55+6	3.05+12
Plasterers	3.50+3	3.85+10	3.47	4.00+45	4.17+27	3.925+1	4.16+10	3.937+10	3.975+15	3.87+41	4.00	4.25+55	3.80+33	3.34+5	4.95+67	4.30+20A	4.325+20	4.10+7½	4.29+63	3.87+32	2.65+6	3.20+21
Electrical Workers	4.00+5	3.85+10	3.925	4.10+25	4.50	4.29+52	4.29	3.625+7½	4.20	4.11+52	4.30+43	4.90+49	3.85+44	4.00+7½	4.40+26	4.675+18	4.60+34½	4.26+52	4.38+37	4.025+26	2.55+5	3.60+19
Steamfitters	4.00+25	3.96+18	3.85+22	4.15+29	4.25+25	4.10+215	4.06+20	3.825+11	4.05+12	3.90+51	4.00+295	4.58+68	3.77+38	3.90+7½	4.80+772	4.35+32	4.25+20	4.425+25½	4.57+76	4.14+29	2.62+6	3.51+20
EQUIPMENT OPERATORS																						
Hoisting Engineers	3.88	4.10+20	3.45	4.15+35	4.05+05	3.90A	4.26	3.70	3.40	3.74+39½	3.72	4.01+25	3.75	3.475+7½	4.90+39	4.50 4.205 +275A	3.82+20	4.175	4.00+35	3.94+29	2.35+5C	3.25+13
Tractor Operators (B)																						
34-49 hp	3.25	3.70+20	3.45	3.575+35	3.80+5	3.675+10	4.01	2.625	2.65	3.74+39½	3.025	4.31+25	3.36	3.475+7½	4.375+35	3.78+275A	3.82+20	4.175	4.23+35	3.91+30	1.95+4C	2.50+10
70-100 hp	3.25	3.70+20	3.45	3.575+35	3.95+5	3.675+10	4.01	2.625	3.25	3.74+39½	3.475	4.31+25	3.60	3.475+7½	4.375+35	4.03+275	3.82+20	4.175	4.23+35	3.91+30	2.18+5	2.60+10
Over 100 hp	3.25	3.70+20	3.45	3.575+35	3.85+5	3.675+10	4.01	2.625	3.25	3.74+39½	3.475	4.31+25	.....	3.475+7½	4.375+35	4.03+275	3.82+20	4.175	4.23+35	3.91+30	2.18+5	2.60+10
Tractor Scraper, 15-16 cy	3.25	3.70+20	3.45	3.575+35	3.85+25	3.675+10	4.01	2.625	3.25	3.74+39½	3.475	4.41+25	3.60	3.475+7½	4.50+36	4.03+275	3.82+20C	4.175	4.36+35	3.91+30	2.18+5C	2.60+10
Power cranes & shovels																						
½ cy	3.78	4.10+20	3.45	4.00+35	4.40+5	3.675+10	4.16	3.425	3.40	3.74+39½	3.72	4.41+25	3.82	3.475+7½	5.25+420	4.50+275	4.02+20	4.175	4.67+35	4.28+30	2.45+5	3.10+12
¾ cy	3.78	4.10+20	3.45	4.00+35	4.40+5	3.90+10	4.16	3.425	3.40	3.74+39½	3.72	4.41+25	4.08	3.475+7½	5.25+420	4.50+275	4.02+20	4.175	4.67+35	4.28+30	2.45+5C	3.25+13
Motor grader operator	3.25	3.25+20	3.45	4.00+35	3.85+5	3.90+10	4.01	2.625	3.25	3.74+39½	3.72	4.41+25	3.36	3.475+7½	4.50	3.93+275	4.02+20	4.175	4.44+35	4.00+30	2.18+5C	2.90+11
Air Comp. operator	3.60	3.30+20	3.45	3.55+35	3.70+5	3.90+10	3.91	2.10	3.25	3.74+39½	3.475	3.53+25	3.25	2.75+7½	4.50+35	3.63+275	3.53+20	3.625	3.67+35	3.64+30	2.05+5	2.60+10
Air tool operator	2.22	2.325+7½C	2.25	2.80+10	4.00+5	3.90+10	3.885	2.10	2.75	3.13+34	2.80	3.47+10	3.30	2.075	4.10+492	2.70+10	2.825+20	3.625	3.655+10	3.35+10	2.05+5	2.60+10
TRUCK DRIVERS																						
1½ Ton	2.10	2.27+075	2.10	2.85+23	2.68+21	2.70+11	3.07+15	2.625	2.70	3.11+18	2.68	3.575+10	2.98	3.475+7½	3.275+28	2.82+18	2.75+20C	3.03+15	3.38+21	3.50+30	1.75+4	2.05+15
Under 4 cy	2.20	2.27+075	2.30	2.85+23	2.68+21	2.75+11	3.07+15	2.625	2.85	3.11+18	2.68	3.575+10	2.98	3.475+7½	3.275+28	2.82+18	2.735+30	3.23+15	3.253+21	3.50+30	1.75+4	2.05+15
Over 4 cy	2.50	2.27+075	2.70	2.85+23	2.68+21	2.80+11	3.07+15	2.625	3.05	3.11+18	2.755	3.765+10	3.13	3.475+7½	3.275+28	2.82+18	2.835+20	3.33+15	3.413+21	3.70+30	1.75+4	2.05+15

ENR Skilled Labor Average (Bricklayers, Carpenters, Iron Workers): $4.240, ENR Common Labor Average $2.862 Description of fringe benefits last appeared Sept. 22 1960. •A 2 drum. •B Including Bulldozers •C correction

BUILDING BOARD & LATH AND INSULATION—DELIVERED TRUCKLOAD LOTS

	Atlanta	Baltimore	Birmingham	Boston	Chicago	Cincinnati	Cleveland	Dallas	Denver	Detroit	Kansas City	Los Angeles Q	Minneapolis F	New Orleans	New York	Philadelphia H	Pittsburgh	St. Louis HO	San Francisco	Seattle	Montreal	Toronto
GYPSUM BOARD & LATH																						
Plaster board, ½"	$62.50F	$54.00	$63.00H	$61.00mH	$67.50	$53.50wH	$64.00CF	$57.50	$64.50H	$66.00K	$72.00H	$67.00F	$68.00	$57.00H	$70.00H	$54.00	$74.00K	$56.50/67.50	$60.00	$74.25K	$58.00M	$58.00
" " ⅝"	52.50F	47.50	52.00H	51.00mH	54.50	43.85wH	57.50CF	47.50	54.00H	56.00K	62.00H	60.50F	58.00	48.00H	56.00H	46.00	65.00K	51-56HO	49.00F	62.00K	50.00M	52.00
Board lath, ⅜"	40.00F	35.75	47.77H	36.00mH	45.00	33.05wH	40.00CF	43.50	42.00H	42.45K	45.00H	0.34F	0.41xL	40.00H	44.50H	37.50	40.00K	40.00HO	0.36xF	54.00K	39/42.00M	41.00L
SHEATHING																						
Gypsum T & G, ½"	62.50F	55.70	75.00H	56.00mH	62.50	51.16wH	53.75CF	57.50	66.75H	66.00K	.....	64.50F	67.00	57.00H	60.00H	49.50	63.00K	67.00HO	61.00F	73.00K	54.00M	70.00
Fiber board, ½", sq. e	72.00F	65.00	67.50H	65.00H	87.00	65.00wH	81.00CF	68.75	62.50H	57.00DK	75.00H	75.00F	100.00	67.00H	78.00	62.50	60.00K	65-75HO	70.00F	68.50K	63.00M	65.00T
" " 25 32", T & G	.....	108.50	140.50H	120.00H	123.00	125.00wH	126.00CF	118.00	107.50H	89.18DK	122.00H	125.00F	135.00	140.00H	124.00	110.00	100.00K	115/120	111.00F	68.50K	.....	.....
INSULATION																						
Fiber board, sq. e., ½"	75.00F	69.00	83.50H	79.00hnH	87.00	72.50wH	88.00CF	68.75	75.00	62.50DK	80.00H	80.00F	81.00	80.00H	78.00	65.00	60.00K	75/80	69.00F	71.00K	73.00M	75.50T
Min. wool, loose	1.59s	1.40F	1.40	1.70bH	1.85	1.45wH	1.35	1.50	1.55b	1.30b	1.40H	76.00BeF	1.75y	2.25L	1.55b	1.20	1.25sK	125/135	1.75F	1.25tK	1.35M	1.85
" " 3" batts	67.80F	67.50	70.00	75.00H	80.00	60.00wH	70H	65.00	65.00ub	52.00	75.00H	83.00F	70.00	70.00*	68.50k	47.00	55.00K	60/70	66.50F	58.00K	60.00M	61.00
Glass fiber, loose	1.45	1.60F	2.00	.....	.....	1.45wH	.....	1.50	2.00b	1.85b	1.80H	1.35s	1.75	.....	.....	1.40	1.25sk	2.00P	1.75F	1.85*pK	1.35M	.....
" " 3" batts	50.00F	47.00F	65.00	75.00H	63/65	60.00wH	62.50	65.00	65.00a	80.00	75.00H	64.00	70.00	.....	68.50	47.00	55.00K	68.50	66.50F	50.25*lKh	60.00M	61.00
Aluminum foil, 1 side	3.62qi	4.00F	3.77gG	5.30xHS	5.25	3.02jwJ	14.00hoJ	5.00gAG	5.25	.....	3.60d	4.40g	3.50	6.50	4.38tH	2.90	4.25igK	4.39ig	5.10	3.50K	9.00qM	15.50o
" " 2 layers	.....	33.50F	.....	53.50qH		66.00wJ	55.00J	45.00	48.65	.....	60.00	7.45V	.....	.....	40.00cH	83.50	38.50K	.....	60.00F	45.00EK	56.00M	46.00

•• F.o.b. warehouse. •a Semi thick. •b 30# bag. •c 3 layers of foil: $54.50. •d 40# kraft paper, 5 Msf, 100/500 rolls. •e 20# sq ft bag, 4" thick. •f Full trailer loads. •g 80# kraft paper backing 400 rolls or over. •h LCL. •i 40#. •j 80#. •k 2-in. •l 2". •m 8 to 10 ton quantities. •n Distributor's siding. •o Per Msf roll. •p 32# bag. •q 500 sf. •s 35# bag. •t 26# bag. •u Flame proof $75. •v 5000 sf quantity. •w F.o.b. city. •x Sq. yd. •y 30# bag. •z Spun rock wool. •A 650 sf. •B ton •C F.o.b. plant, freight allowed. •D CL. •E 10 Msf. •F Less 2% disc, 10th. •G ½ of 1% 10 days. •H 2% disc, 10 days. •J 1% disc, 10 days. •K Less 2% for cash. •L 5% disc, 10th mo. •M fed. tax incl. •N 1% disc, 10 days. •O add 2% sales tax. •P 50 lb. bags. •Q add 4% sales tax •R revised. •S 45 lb. •T less 2% 30 days. •U lots of 2606 sq. ft. •V 250 sf roll.

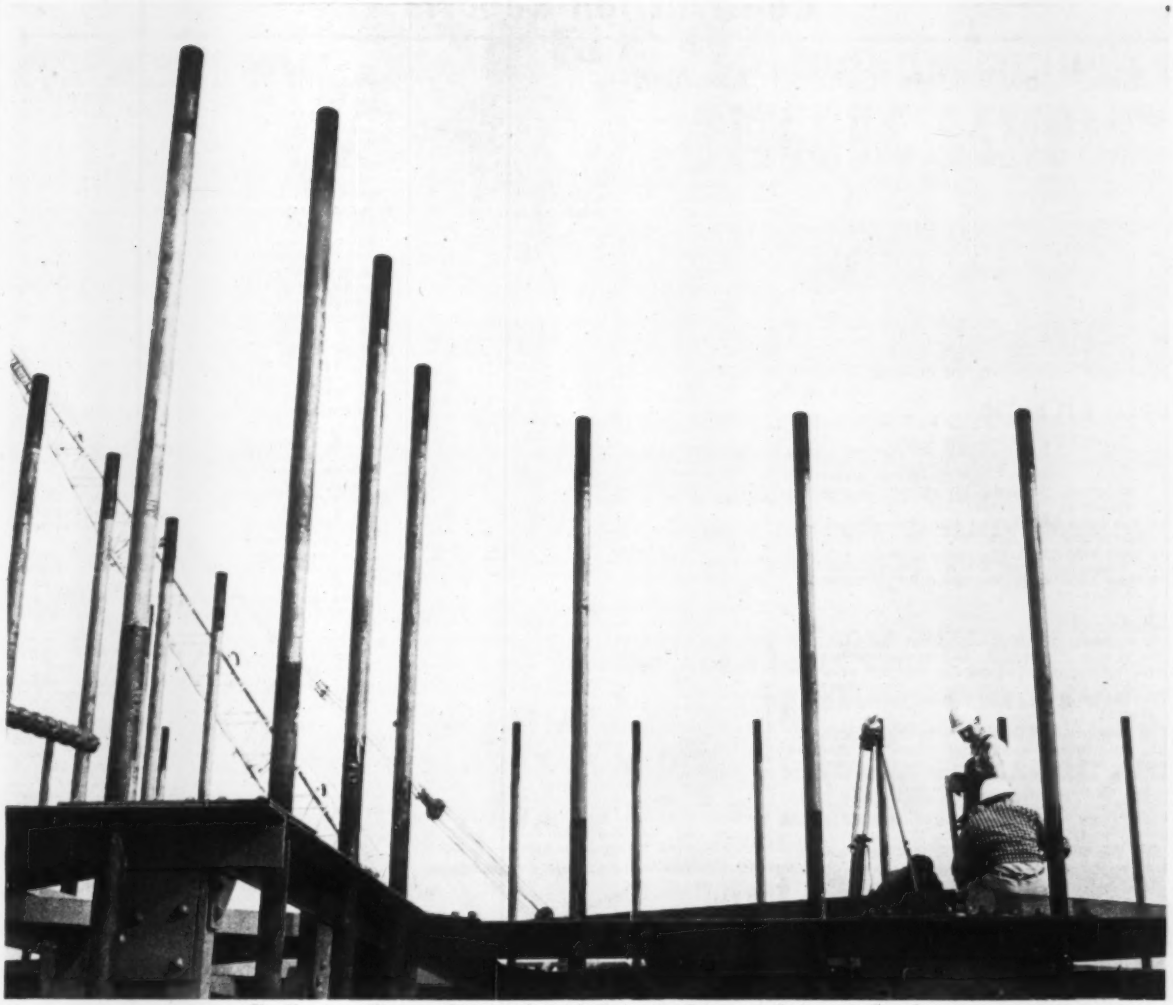
MEXICO CITY WAGES AND PRICES, SEPTEMBER, 1961

WAGES, av per week, 8 hr day (pesos) 6 days work-extra day's pay

Common labor,	building (peons)	101 50
	heavy const (peons)	136 50
Skilled labor;	carpenters 1 cl	210 00
	bricklayers 1 cl	245 00
	struct, ironworkers	315 00

MATERIAL PRICES, F.o.b. City (pesos)

Struct. steel shapes, fob Monterrey		
I-beams, 3 x 3 x 4"	per metric ton	1980.10
Reinf. steel, corrugated rods, per ton		
⅜"-½" x 11 meters consolidada		1875-1950
¾"-1" x 11 meters		1750 00
Gravel, truckload, per cu meter		
Blue gravel		30 00
Cement, std. port. (Tolteca)	per metric ton	260 00
Lumber, 2" x 4" 1st class pine 20 ft.	per M sq. ft.	3000 00
2" x 4" 2nd class pine	per M sq. ft.	2300 00



The Verrazano-Narrows Bridge is being built by the Triborough Bridge and Tunnel Authority. Consulting engineers are Ammann & Whitney. Sub-contractors: Steers-Snare

ANCHOR BOLTS *for Verrazano-Narrows Bridge*

Fifty-four anchor bolts have gone into each of the two 37-ton anchor bolt frames, which will secure the 630-ft-high Staten Island Tower of New York's Verrazano-Narrows Bridge to its massive concrete pier. The 3-in.-diameter bolts are 21 ft, 9 in. long. After the frames are positioned, they will be embedded in the pedestals for support of the tower legs. The anchor bolts provide the necessary resistance to uplift which occurs, at the base, during the bridge construction phase.

Specially manufactured at Bethlehem's Lebanon, Pa., fastener plant, these king-size bolts required exacting tolerances, since all future work on the huge tower is dependent upon close fit, as well as precise location of the bolts and their connections within the tower base section.

This precision workmanship is characteristic of all Bethlehem fasteners for construction: tie rods, turnbuckles, and clevises; concrete form stakes; U-bolts; high-strength bolts; rivets; and many other standard and special fasteners . . . in a wide choice of sizes, styles, coatings, and finishes.

For fast service, just call our nearest sales office. Or write us at Bethlehem, Pa.

Steel

for Strength
. . . Economy
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BETHLEHEM STEEL COMPANY BETHLEHEM, PA. *Export Sales:* Bethlehem Steel Export Corporation

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BETHLEHEM STEEL

Bid Asked—Low Bidders—Contracts Awarded—

NEW ENGLAND

HEAVY CONSTRUCTION—LB & CA

▲ **CONNECTICUT**—State Hy. Comr., 170 Douglas St., Hartford. Bids opened 9/18, ROAD,
Cayuga Constr. Corp., 30 Vesey St., New York, N. Y. LB $3,484,414, (3 bidders), 1.238 lin. ft. grading, paving reinforced-conc. section Interstate Rte. 84, widening, paving Bulkeley Bridge and constr. 2-span girder bridge, Proj. 63-53, East Hartford and Hartford. CD 8/30/61.

BUILDINGS—LB & CA

▲ **Granger Contg. Co., Inc.,** 306 Main St., Worcester, Mass., LB $3,116,760, est. $3,479,000 HIGH SCHOOL, Granite St., LEOMINSTER, MASS. City, High School Bldg. Comn., City Hall, Leominster, Mass. BA 9/14. CD 8/15/61.

MIDDLE ATLANTIC

HEAVY CONSTRUCTION—BA

▲† **Maryland**—BA 10/17—U. S. Eng., 24 St. and Maryland Ave., Baltimore, Zone 18, wid'n., deepen MAIN CHANNEL, Chesapeake Bay, CIVENG-18-020-62-7. $5,000,000. CD 6/9/44.

▲ **New York and New Jersey**—BA 10/19—At Office ch. engr. Port of New York Auth., Rm. 1100, 111 Eighth Ave., New York 11, N. Y., Contr. GWB-190.029, George Washington Bridge, LOWER LEVEL EXPANSION, New Jersey Approach, Phase 6. Plans deposit $50. CD 8/15/57.

BUILDINGS—BA

▲ **N. Y., Amherst**—BA 10/10—Forest City Enterprises, 16903 St. Clair, Cleveland, O., HAC MALL SHOPPING PLAZA. $10,000,000. Extended date. Lathrop Douglas, 518 5 Ave., New York, N. Y., archt. Leon Slezer, 200 W. 57 St., New York 19, N. Y., engr. CD 8/18/61.

▲ **N. Y., New York**—BA 10/10—New York City Housing Auth., Rm. 1002, Purchase Div., 10th Floor, 299 Broadway, New York, Zone 7, (1) fdns. and general constr. (2) heating and ventilating (3) electrical work and (4) plumbing work at Gaylord White HOUSES, Proj. NYS-95, southeast portion of E. 105 St., 2 Ave., E. 104 St. and 3 Ave., Manhattan Boro. $3,500,000. Plans deposit $75. CD 8/25/61.

▲ **N. Y., New York**—BA 10/17—New York City Housing Auth., Rm. 312, 299 Broadway, New York, Zone 7. (1) fdns. and general constr. (2) heating and ventilating (3) electric work (4) plumbing, MOTT HAVEN HOUSES, Proj. NY-5-44, E. 144 St., Willis Ave., E. 140 St., Alexander Ave. and 3 Ave. excluding certain areas in northwest portion and southwest portion, Bronx Boro. Plans deposit $75. CD 8/25/61.

HEAVY CONSTRUCTION—LB & CA

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany, Zone 1, BRIDGE,
Karl Koch Erecting Co., Inc., 362 Casanova St., New York 58, N. Y., CA $3,474,000 est. $3,956,000, rein.-con. slab pavt. 0.8 mi. incl. superstructure for 27 span bridge, three steel arch spans, Fire Island Inlet Bridge Superstructure Contr. 2, FIIB 61-2, Suffolk Co. BA 8/24, CA 9/15. CD 8/25/61 under LB.

▲ **NEW JERSEY**—State Hy. Dpt., 1035 Parkway Ave., Trenton, ROADS,
Poirier & McLane Corp., 33 West 42nd St., New York, N. Y., CA $3,503,802, constr. 1 mile section Interstate Rte. 80 (Bergen-Passaic Expressway) through Lodi, Bergen Co. BA 8/9/61, CA 9/14/61. CD 8/11/61, under LB.

BUILDINGS—LB & CA

▲ **Siegfried Constr. Co., Inc.,** 6 N. Pearl St., Buffalo, N. Y., CA Est. over $4,000,000, 400,000 sq. ft. PLANT for printing books, DEPEW, N. Y. J. W. Cement Co., 8 Lord St., Buffalo, N. Y., E. R. Reed, 775 Main St., Buffalo, N. Y., archt. CD 8/15/61.

▲ **John H. Eisele Co., Inc.,** 18 E. 41 St., New York 17, N. Y., CA Est. $3,875,000, Mount St. Mary's CONVENT and TRAINING CENTER for Teachers (2 bldgs.), NEWBURGH, N. Y. Archdiocese Bldg. Comn., 451 Madison Ave., New York 22, N. Y. Ferrenz & Taylor, 1451 Broadway, New York 36, N. Y., archts. CD 2/9/60, under Dominican Sisters of Mount St. Mary, as owner.

▲ **George F. Driscoll Co.,** 41 E. 42 St., New York 17, N. Y., CA Est. $16,624,000, BIG SIX TOWERS, five-18 story, one-15 story and one-17 story apartments, Queens Blvd., 47 Ave. and Laurel Hill Blvd., WOODSIDE, N. Y. New York Typographical Union No. 6, 62 W. 14 St., New York 11, N. Y. Frederick G. Frost & Assocs., 144 E. 30 St., New York 16, N. Y., archts. Severud, Elstad & Krueger, 415 Lexington Ave., New York 17, N. Y., struct. engrs. Fred S. Dubin Assocs., 312 Seventh Ave., New York 1, N. Y., mech. engrs. CD 5/13/59.

▲ **Leman Realty Co.,** 344 Park Ave., Scotch Plains, N. J., Owner Builds, $3,000,000, 124 HOUSES, Lyons Rd., BASKING RIDGE, N. J. Peter Grygotis, 306 Aldene Rd., Roselle, N. J., archt.

▲ **St. Barnabas Medical Center,** 685 High St., Newark, N. J., Separate Contracts, $5,000,000-$6,000,000. HOSPITAL, LIVINGSTON, N. J. CD 8/24/61.

▲ **Levitt & Sons, Inc.,** U.S. Hy. 130, Levittown, N. J. Owner Builds, $20,000,000, 1,300 HOMES, Strathmore-at-Matawan, Rte. 34, MATAWAN, N. J. CD 3/2/61, under William J. Levitt, Jr., as owner.

▲ **Badger Mfg. Co.,** 230 Brent St., Cambridge, Mass., CA design and construct 30 million pounds per year capacity PHTHALIC ANHYDRIDE PLANT, PERTH AMBOY, N. J. California Chemical Co., Oronite Div. sub. Standard Oil Co. of California, 225 Bush St., San Francisco, Calif. CD 8/10/61.

▲ **American Federation of Labor Hospital Assoc.,** 253 N. Broad St., Phila., Pa., rejected bids Sept. 12. HOSPITAL, BOILER, plant and parking lot, PHILA., PA., $4,000,000. CD 8/9/61.

▲ **Feldman Constr. Co., Jack Feldman,** pres., 151 Serril Rd., Elkins Park, Pa., CA Est. $10,000,000, 37 three story TOWN HOUSES, Society Hill Redevelopment. Third and Locust Sts., Phillip and St. James places, PHILA, PA. Webb & Knapp, Inc., 383 Madison Ave. New York 17, N. Y. I. M. Pei Assocs., 383 Madison Ave, New York 17, N. Y., archts. Severud-Elstad-Krueger Assocs., 415 Lexington Ave., New York, 17, N. Y., engrs.

▲ **McNichol Paving & Constr. Co.,** 52nd St. and Grays Ave., Phila. 43, Pa., CA $3,700,000, 14 story PUBLIC HOUSING, Westpark Proj., 44, 45 and Market Sts. (Kirkbride-Penn. Hospital Site), PHILA., PA. Phila. Housing Auth., 42 S. 15th St., Phila., Pa. CD 5/19/61.

▲ **A. Martini & Co.,** 131 Torrens St., Pittsburgh, Pa., CA Est. $3,000,000, West Hills SHOPPING CENTER, Beers-School, Broadhead, Narrows Run and Beaver Grade Rds., Moon Twp., PITTSBURGH, PA. Porter & MacDowell Co., Standard Life Bldg., Pittsburgh, Pa. B. A. Hoffman, Blakewell Bldg., Pittsburgh, Pa., archt.

▲ **HRH Constr. Corp.,** 579 Fifth Ave., New York 17, N. Y. CA Est. $3,500,000, 7 story, 204 unit MOTEL, incl. swimming pool, restaurant, South Capitol St., and I St., WASH., D. C. Harold & Morris Steinberg, 500 5th Ave., New York 36, N. Y. Lapidus, Harle & Liebman, 139 E. 46th St., New York 22, N. Y., archts.

▲ **Baltimore Contractors, Inc.,** 711 S. Central Ave., Baltimore, Md., CA $5,000,000, GYPSUM PLANT, BALTIMORE, MD. United States Gypsum Co., 300 W. Adams St., Chicago, Ill.

SOUTH

BUILDINGS—BA

▲ **Ky., Louisville**—BA 10/23—F. W. Drybrough, South 5 St., Zone 2, APARTMENT and PARKING GARAGE, 4th and York Sts. $4,000,000. Plans deposit $100. Arrasmith & Tyler, 501 Park Ave., Zone 8, archts. Lowenberg & Lowenberg, 120 S. La Salle St., Chicago, Ill., assoc. archts. Southern Engineering Co., 322 W. Jefferson, Zone 2, engr. CD 8/4/60, under CA.

HEAVY CONSTRUCTION—LB & CA

▲† **Blount Bros. Constr. Co.,** 79 Commerce St., Montgomery, Ala., CA $15,190,000, SATURN ROCKET COMPLEX 37, Cape Canaveral Missile Test Annex, Patrick Air Force Base, ENG-08-123-62-1B, COCOA, FLA. U.S. Eng., 575 Riverside Ave., Jacksonville, Fla. BA 8/29/61, CA 9/13/61. CD 9/1/61 under LB.

MIDDLE WEST

BUILDINGS—SLC

▲ **O., Sharonville**—Carrousel Motel, Inc., 8001 Reading Rd., Cincinnati, soon lets contract first section, 250 unit CARROUSEL NORTH MOTEL and CONVENTION HALL, $10,000,000. CD 8/8/61.

HEAVY CONSTRUCTION—LB & CA

▲ **ILLINOIS**—Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield, Bids opened 9/19, BRIDGES,
Ill.—Eric Bolander Constr. Co., Winchester Rd., Libertyville, Ill., LB $611,215 (9 bidders), railroad grade separation structure, slab bridge over Skokie Ditch, grade separation structure Deerfield Rd. over 99, Lake Co.; LB $245,087 (7 bidders), grade separation, local road over FAI 74 and Cemetery Rd. over FAI 74 south of Danville, Vermilion Co.;
Ill.—Allied Structural Steel Co., 20 N. Wacker Dr., Chicago, Ill., LB $619,475 (6 bidders), furnish steel for railroad subway structure C. R. & K. R. R. over South Expressway near Pershing Rd., Chicago, Cook Co.;
Ill.—Michael J. McDermott Co., 30 N. LaSalle St., Chicago, Ill., and **Leininger Constr. Co.,** 30 N. LaSalle St., Chicago, Ill., LB $2,294,515 (7 bidders), railroad subway structure C.R. & I. over South Expressway near Pershing Rd., Chicago, Cook Co. CD 9/1/61.

▲ **ILLINOIS**—State Dpt. P. Wks. & Bldgs., Div. Hys., Centennial Bldgs., Springfield, Bids opened 9/19, ROADS,
Ill.—Eric Bolander Co., Winchester Rd., Libertyville, Ill., LB $1,172,487 (6 bidders), dual conc. paving 0.97 mi. FA 178 and interchange with US 6 in and north of Peru, LaSalle Co.; LB $203,499, bit. surf. 1.58 mi. FAS 71 west of Elizabeth, bridge, JoDaviess Co.;
Ill.—Charles Ind Co., 1415 Point Ave., Rockford, Ill., LB $2,108,911, (3 bidders), dual concrete paving 4 mi., recondition 5.31 mi. Ottawa Test Rd., north of Ottawa, FAI 80, LaSalle Co.;
Ill.—O'Connor Constr. Co., P.O. Box 292, Springfield, Ill., LB $3,325,000, (6 bidders), dual paving, grade separation structure, frontage roads 6.83 mi. FAI 57 west of Watson to FAI 70, Effingham Co. CD 9/1/61.

▲ **R. H. Fulton & Co.,** 2323 Erskine Rd., Lubbock, Tex., CA $4,250,000, 46 mi. GAS LINE, Loop Line along Texas-Chicago System, Washington, Clinton, Platt, and Marion Counties, ILLINOIS. Natural Gas Pipe Line Co. of America, 20 N. Wacker Dr., Chicago 6, Ill.

▲ **Power Constr. Co.,** 125 S. Marion St., Oak Park, Ill., LB Over $4,000,000 MAUSOLEUM, HILLSIDE, ILL. Catholic Cemeteries, 1400 S. Wolf Rd., Hillside, Ill. BA 9/14/61. CD 9/7/61.

▲ **MICHIGAN**—State Hy. Dpt., 732 Mason Bldg., Lansing 26, ROADS,
Mich.—A. Lindberg & Sons, Inc., Box 134, Ishpeming, Mich., CA $2,537,376, grading, drainage 3.6 mi. incl. 2 bridges, 1 interchange, 1 grade separation U.S. 23, Washtenaw Co.;
Mich.—Walter Toebe, P.O. Box 76, Lansing, Mich., and **C. A. Hull Co.,** 2 Barbour Terrace, Bloomfield Hills, Mich., CA $2,118,762, seventh-tenths mi. John C. Lodge Expressway, Detroit, Wayne Co.;
Mich.—Brown Brothers Constr. Co., 3245 W. St. Joseph, Lansing, Mich., CA $592,682, about ½ mi paving and railroad grade sep. to carry New York Central Tracks over Sheridan St., Ingham Co. Grand total $5,248,819. BA 8/23. CA 9/6. CD 8/29/61, under LB.

▲ **Michigan Sewer Constr. Co.,** 21720 W.8-Mile Rd., Detroit, Mich., LB $2,589,820 Proj. MS-1, 10,010 lin. ft. rein.-con. 13 ft. 3 in. DRAIN in Tunnel, jct. boxes, manholes, structures, Berkeley, Madison Heights, Royal Oak, Huntington Woods; LB $2,088,958, Proj. NS-2, 13,933 lin. ft. rein.-con. 13 ft. 0 in. to 8 in. DRAIN, tunnel and open cut, jct. chambers, manholes, structures, Birmingham, Troy, Clawson and Royal Oak, PONTIAC, MICH. Twelve Town Drains, 4th Floor, Superv. Office, Oakland County Bldg., 1 Lafayette St., Pontiac, Mich. BA 9/19, CD 8/11/61;
Rodgers, Healy, Gargaro, Barton-Malow Co., 6567 E.7-Mile Rd., Detroit, Mich., LB $2,365,861, Proj. SS-1, 3,331 lin. ft. triple box rein.-con. 14 ft. 3 in. x 13 ft. 3 in. DRAIN, 2,150 lin. ft. double box 14 ft. 3 in. x 13 ft. 3 in. drain, sanitary interceptor reloc. jct. box, 11,400 sq. yd. conc. paving, 36 in. inlet, Hazel Park, Oak Park, Ferndale, Southfield (Pontiac, Mich.);
Greenfield Constr. Co., 15601 W. McNichols, Detroit, Mich., LB $2,674,811, Proj. SS-4, 15,505 lin. ft. 10 ft. 6 in. to 18 in. rein.-con. DRAIN, tunnel, open cut, jct. boxes, manholes and connections, Hazel Park, Oak Park, Ferndale, Southfield (Pontiac, Mich.);
Chris Nelsen & Son, Inc., 415 E. Hudson Ave., Royal Oak, Mich., LB $987,461, Proj. NS-6, 13,364 lin. ft. 8 ft. 0 in. to 21 in. DRAIN, tunnel and open cut, jct. chambers, manholes, structures, Birmingham, Troy, Clawson and Royal Oak (Pontiac, Mich.);
Sugden, Inc., 10460 W.9 Mile Rd., Oak Park, Mich., L $440,062, Proj. NS-5, 8,061 lin. ft. 7 ft. 6 in. to 15 in. DRAIN open cut, jct. chambers, manholes, structures, Birmingham, Troy, Clawson and Royal Oak (Pontiac, Mich.).

BUILDINGS—LB & CA

▲ **Jencik Builders, Inc.,** 28549 S. Woodland Rd., Cleveland, O., Owner Builds, $3,500,000, $1,500,000 first year (2 year program) 40 two story, 8 suite APARTMENTS, Lake Shore Blvd., EAST LAKE, (Br. Willoughby), O. Henry C. R. Grieme, 35 River St., Chagrin Falls, O. archt. CD 4/13/61.

▲ **Dunbar Industries, Inc.,** 3810 Upton Ave., Toledo, O., CA Est. $4,500,000, 300 HOMES, McCord Rd., south of Brint Rd., SYLVANIA, O. Harford Corp., 3810 Upton Ave., Toledo, O.

▲ **Dunbar Industries, Inc.,** 3810 Upton Ave., Toledo, O., Owner Builds, $3,000,000, HOUSING, Carriage Hill Subdivision, TOLEDO, O.

MISSISSIPPI TO ROCKIES

BUILDINGS—BA

▲ **Ark., Ozark**—BA 10/3—Arkansas State Electric Cooperative Corp., 3111 E. Broadway, North Little Rock, combustion control, substructure and yard utilization, river intake structure, fuel oil and water tank, etc. for POWER PLANT steam generating. Extended date. Burns & McDonnell, P.O. Box 173 and 4600 E. 63rd St. Trafficway, Kansas City 41, Mo., engrs. CD 9/12/61.

▲ **Mo., St. Louis**—BA About 2/15—Collins, Tuttle & Co. Inc., 261 Madison Ave., New York 16, N. Y., 20 story, 275,000 sq. ft. air-conditioned EXECUTIVE OFFICE, 515 Olive St. $6,000,000. A. Epstein & Sons, Inc., 2011 W. Pershing Rd., Chicago, Ill., archt. Sverdrup & Parcel & Assocs., Inc., 915 Olive St. St. Louis 1, Mo., engr. CD 4/5/61.

BUILDINGS—SLC

▲ **Mo., St. Louis**—Anheuser-Busch, Inc., 721 Pestalozzi St., Zone 18, soon lets contract SUPERSTRUCTURE 10 story brick, concrete, steel, etc. Stockhouse, 13 St. between Arsenal and Pestalozzi Sts. $4,000,000.

Sverdrup & Parcel & Assocs., Inc., 915 Olive St., St. Louis 1, Mo., archt.-engr. CD 7/7/61.

HEAVY CONSTRUCTION—LB & CA

▲ **MINNESOTA**—State Hy. Dpt., Hy. Bldg., St. Paul, Minn.—**S. J. Groves & Sons Co.**, 500 Wesley Temple Bldg., Minneapolis, Minn., LB **$3,839,857**, (8 bidders), grading and bridges 6.7 mi. Bridges Nos. 9738, 9739, 9747 (southbound) and 9748, (northbound), 9749 (southbound) and 9750 (northbound), 9752, 9753 (westbound) and 9754 (eastbound), Hennepin Co.; Minn.—**Ryan, Inc.**, Box 206, Janesville, Wis., LB **$1,485,490**, (5 bidders), grading, gravel base, plant mixed bit. surf. and Bridges No. 27021 and 27022, Hennepin Co. CD 8/30/61.

▲ **MISSOURI**—State Hy. Dpt., Jefferson City, ROADS, Mo.—**S. J. Groves & Sons**, 1104 W. Reynolds, Springfield, Ill., CA **$1,523,664**, grad., culvts. 1.503 mi. Proj. I-270-5(62)228, St. Louis Co.; CA **$129,869**, water line N & S of Rte. SD (Page Ave.) Proj. I-270-5(62)-228, St. Louis Co.;
Mo.—**Cameron, Joyce & Co.**, 19 S. 7 St., Keokuk, Iowa, CA **$2,193,858**, grad., culvts. 10.158 mi. Proj. I-7003(28), 176, Montgomery Co.;
Mo.—**J. A. Tobin Constr. Co.**, 3701 Rainbow Blvd., Kansas City, Kan., CA **$1,055,540** grad., culvts. 3.998 mi. Proj. I-70-3(26)91, Cooper Co.;
Mo.—**Runquist Co.**, Savannah, Mo., CA **$118,654**, grad., culvts., gran. surf., 7.967 mi. S-1959(1), Andrew Co. Grand total $5,021,585. BA 8/24, CA 8/26. CD 8/30/61, under LB.

▲† **Paul Hardeman, Inc.**, 10579 Dale St., Stanton, Calif., CA **$3,300,000**, Greers Ferry POWERHOUSE, Cleburne County, CIVENG-03-050-62-1, ARKANSAS. U. S. Eng., Gay Bldg., Little Rock, Ark. BA 9/6/61 CD 9/11/61, under LB.

▲ **Williams Brothers Co.**, National Bank Bldg., Tulsa, Okla., CA Est. **$6,775,000**, 78 mi. GAS LINE, LOOP LINE, along Texas-Chicago System, ARKANSAS. Natural Gas Pipe Line Co. of America, 20 N. Wacker Dr., Chicago 6, Ill.

▲† **Kesk, Inc.**, 136 S. Derbigny St., New Orleans, 12, La., LB **$7,662,710**, est. $6,500,000, (5 bidders), 500 units CAPEHART HOUSING, Ellsworth Air Force Base, ENG-39-601-62-4, RAPID CITY, S. D. Base Procurement Office, Ellsworth Air Force Base, Rapid City, S. D. BA 8/31/61. CD 8/2/61.

▲ **Mike Abraham**, Mercantile Bank Bldg., Dallas, Tex., Owner Builds, **$2,925,000**, 65 masonry DWELLINGS, adjacent developed Sharpston Hgts., GRAND PRAIRIE, TEX.

▲**General Housing Co. of Texas**, 3415 Cole Ave., Dallas, Tex., CA **$2,000,000**, 1 story, masonry SHOPPING CENTER, Lancaster Plaza, LANCASTER, TEX. Wintergreen & Lancaster, c/o Roper & Vance, archts., 4411 N. Central Expressway, Dallas, Tex.

▲ **Hill & Moore Constr. Co.**, 3000 Jacksboro Hy., Wichita Falls, Tex., Owner Builds, **$3,575,000**, 333 DWELLINGS, Lake Front Drive, Meadowlake Addn. WICHITA FALLS, TEX. Dunaway & Jones, 2706 Richmond Ave., Houston, Tex., archts.

▲ **Witkin Homes**, 6118 Nelson St., Arvada, Colo., Owner Builds, **$4,400,000**, 1 and 2 story, 1,100 to 1,700 sq. ft. 260 RESIDENCES, Allendale Heights, ARVADA, COLO. Horace Brand, 10794 Allendale Drive, Denver, Colo., archt.

▲ **Unitco, Inc.**, 3300 W. Olive Ave., Burbank, Calif., CA Approx. **$5,000,000**, build-lease AIR DEFENSE COMMAND HEADQUARTERS (Little Pentagon) 300,000 sq. ft. Parking, Bijou St., COLORADO SPRINGS, COLO. General Services Admin., Bldg. 41, Denver Federal Center, Denver, Colo. CD 9/14/61.

▲ **Devonshire Heights, Inc.**, c/o A. E. McCroskie, 263 Josephine, Denver, Colo., Owner Builds, **$4,000,000**, RESIDENTIAL SUBDIVISION, 52 homes, near E. Hampton Ave., Cherry Hill Village, DENVER, COLO.

FAR WEST

HEAVY CONSTRUCTION—BA

▲ **Calif., San Diego**—BA 10/18—City, Rm. 161, Civic Center Bldg., Zone 1, 114 in. rein. conc. INTERCEPTOR SEWER, Contr. 1, SEWERAGE COLLECTION TREATMENT and DISPOSAL SYS. $4,237,700. Plans deposit $25. CD 8/1/61, under LB.

▲ **Calif., Sacramento**—BA 11/23—City Council, City Hall, 9 and I Sts., WATER FILTRATION PLANT, American River near Sacramento State College. $10,000,000. James Montgomery, 535 E. Walnut St., Pasadena, consult. engr. CD 11/9/59.

BUILDINGS—BA

▲ **Calif., Los Angeles**—BA 10/13—Bd. Educ., 1425 S. San Pedro St., Mulholland JUNIOR HIGH SCHOOL (formerly Birmingham Junior High School). $2,885,000. CD 4/7/61.

▲† **Wash., Auburn**—BA 10/24—General Services Admin., 19th and F Sts. NW, Wash., D.C., GSA STORES DEPOT and RECORDS CENTER, EXTENSION and REMODELING. CD 2/16/61.

BUILDINGS—SLC

▲ **Wash., Seattle**—Swedish Hospital, 1212 Columbia St., soon lets contract 2 and 5 story, 130,000 sq. ft., rein.-con., steel HOSPITAL ADDN. $3,200,000. Naramore, Bain, Brady & Johanson, 904 7th Ave., archts. Worthington Skilling, Helle & Jackson, Washington Bldg., structural engrs. CD 9/6/61.

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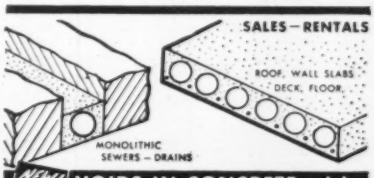

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HEAVY CONSTRUCTION—LB & CA

▲ **WASHINGTON**—State Hy. Comn., Transportation Bldg., Olympia, ROADS.

Wash.—**Guy F. Atkinson Co.**, Box 1000, South San Francisco, Calif., CA **$7,944,493**, 0.73 mi. Seattle Freeway, E. Republican to Galer Sts., King Co.;

Wash.—**Fiorito Bros.**, 1100 Leary Way, Seattle, Wash., CA **$1,540,418**, clearing, grading, bit. surf. treatment, cement treated base, b. conc. paving, cement concrete, fencing 4.61 mi. Primary State Hy. 1, Pierce Co. Line to junction with Primary State Hy. 5, Proj. FA I 5-3(121)139 and EBF-046-1(19), King Co., BA 9/12/71. CD 9/14/61, under LB.

▲ **CALIFORNIA**—State Div. Hys., 1120 N St., Sacramento, ROAD.

Fredrickson & Watson Constr. Co. and **Lew Jones Constr. Co.**, 873 81 Ave., Oakland, Calif., CA **$3,950,236**, grading, paving 12.2 mi. four lane freeway US Hy. 99 incl. 7 bridges between 2 mi. north of Red Bluff and Shasta Co. Line south of Cottonwood, Tehama Co. BA 9/6. CD 9/11/61, under LB.

▲† **Gunther & Shirley Co.** and **E. V. Lane Corp.**, 2675 Park Bldg., Palo Alto, Calif., LB **$3,174,108**, est. $2,815,281 (10 bidders), completion Trinity POWERPLANT approx. 8 mi. northeast of Lewiston, Trinity Co.; Spring Creek POWERPLANT approx. 6 mi. northwest of Redding; Clear Creek POWERPLANT and SWITCHYARD approx. 12 mi. southeast of Lewiston, Shasta Co., Central Valley Proj. Spec. DC 5640, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Lewiston, Calif. BA 9/19. CD 8/7/61.

BUILDINGS—LB & CA

▲ **T G K Constr. Co. Inc.**, 2750 West McDowell Rd., Phoenix, Ariz. CA **$3,629,000**, 8 story MUNICIPAL OFFICE, 2nd and 3rd Aves. and Washington and Jefferson Sts., PHOENIX, ARIZ. City, City Hall, Phoenix, Ariz. CA 9/12/61. CD 8/23/61 under LB.

▲ **Jackson Brothers**, 3475 W. 8 St., Los Angeles, Calif. CA **$5,000,000**, 2 and 3 story AIRPORT MARINA HOTEL, Lincoln Ave. and Manchester Ave., WESTCHESTER (LOS ANGELES), CALIF. Fritz B. Burns & Assoc., 4950 Wilshire Blvd., Los Angeles, Calif. Welton Becket & Assoc., 10000 Santa Monica Blvd., Los Angeles, Calif., archts.

CANADA

HEAVY CONSTRUCTION—LB & CA

▲ **Burns & Dutton Concrete & Constr. Co., Ltd.**, P. O. Box 636, Edmonton, Alta., CA **$8,207,531** 160x900 ft. AIR TERMINAL, with 3 story central block, parking and approaches, multi-story office block above, Edmonton International Airport, EDMONTON, ALTA., Dpt. Transport, Hunter Bldg., Ottawa, Ont. BA 8/10/61. CD 8/16/61, under LB.

BUILDINGS—LB & CA

▲ **Anglin-Norcross Ontario Ltd.**, 224 Davenport Rd., Toronto, Ont., CA **$23,008,000**, Total cost $25,093,-122. TWIN TOWER CITY HALL, TORONTO, ONT. Bd. Control, City, City Hall, Toronto, Ont. BA 8/16/61, CA 9/18/61. CD 8/21/61, under LB.

AMERICANS ABROAD

BUILDINGS—LB & CA

▲ **Caltex Oil (Germany) G.m.b.h.**, subsidiary Standard Oil Co. of California, 225 Bush St., San Francisco 20, Calif., U.S.A., Own Forces, ISOCRACKING FACILITIES, 6,540 barrel/day capacity at existing refinery, Frankfurt Main, GERMANY.

▲ **Chemical Constr. Corp.**, 320 Park Ave., New York, N. Y., U. S. A., CA **$19,790,000**, design and equipment and machinery for AMONIA, UREA and NITRIC ACID PLANTS at Fertilizer Proj., Maharashtra, INDIA. Govt. of India, New Delhi, India. CD 5/18/60.

▲ **Elin Union A.G.** and **Waagner Biro A.G.**, both of Bienna, Austria, CA **$12,490,000**, constr. 40,000 kw LIGNITE POWER PLANT, KRABI, THAILAND. Thai Lignite Authority, Bangkok, Kingdom of Thailand. The Kuljian Corp., 1200 N. Broad St., Phila., Pa., U.S.A., engrs.

FOREIGN

HEAVY CONSTRUCTION—BA

▲ **Austrialia**—BA 11/8—Queensland Govt. Railways, Comr. Railways, Railways Bldg., Adelaide St., Brisbane, Contr. 8, Mt. Isa RAILWAY PROJ., consisting 55 mi. roadways for railway line deviations, track laying, etc. CD 1/15/60.

BUILDINGS—BA

▲ **Sudan**—BA 12/31—Dir. Ministry of Works, P.O. Box 300, Khartoum, Khashm El Gibra RESETTLEMENT PROJ. approx. 700 HOUSES, SCHOOLS, HEALTH CENTERS, HOSPITAL, OFFICES, etc. Firms interested in bidding should express interest by Oct. 1.

For additional reports see CONSTRUCTION DAILY REPORTS SECTION

PROPOSED PROJECTS

WATER SUPPLY

▲ **Colo., Westminster**—City, City Hall, WATER SYSTEM IMPRVS. **$4,000,000**. Phillips, Carter & Osborn, 200 Insurance Bldg., 831 14th St., Denver, consult. engrs. CD 8/11/60.

SEWERS, WASTE DISPOSAL

▲ **Ala., Phenix City**—City, City Hall, SEWAGE DISPOSAL PLANT. $3,000,000. CD 1/14/60.

STREETS AND ROADS

▲ **MAINE**—State Hy. Comn., State House, Augusta, ROADS, **$6,000,000** bond election Oct. 10, highways.

EARTHWORK, WATERWAYS

▲ **Wash.**—Auburn-Drainage Dist. No. 1, 905 County City Bldg., Seattle, Zone 4, WATERSHED IMPRVS., Green River Valley, **$7,000,000**. Stevens & Thompson, Hoge Bldg., Seattle, Zone 4 consult. engrs. Walter Winters, c/o owner engr. (Correction—Owners address.) CD 8/28/61.

▲† **Wyoming**—Bureau Reclamation, Bldg. 53, Denver Federal Center, Denver, Colo., HYDRO ELECTRIC POWER PLANT, Fortenelle Dam, Green River, Seedskadee Project, $5,000,000. (No appropriation.)

▲ **British Columbia**—British Columbia Power Comn., P. O. Box 500, Victoria, 20,000 hp. HYDRO PROJECT, Fulton River, incl. 100 ft. high, 300 ft. wide dam, powerhouse, transmission lines for Hazelton, Smithers, Houston and Burns Lake, **$10,000,000**.

UNCLASSIFIED

▲† **Tenn., Tullahoma**—U.S. Eng., P.O. Box 1169, Mobile, Ala., BUILDINGS, UTILITIES, Arnold Air Force Station, **$17,500,000** (appropriated). CD 11/16/54.

▲ **Texas**—Humble Pipe Line Co., 1216 Main St., Houston,
270 mi. products PIPE LINE, Baytown, Harris Co., and San Antonio-Austin, Bexar-Traves Counties, **$6,400,000**.
PUMP STATION, Eagle Lake, **$400,000**.
PUMP STATION, San Antonio, **$400,000**.
PUMP STATION, Austin, **$400,000**.

▲ **Texas**—South Texas Electric Cooperative, Box 2178, Victoria, 833 mi. ELECTRIC TRANSMISSION LINES, **$2,933,000**; 18 ELECTRIC SUB-STATIONS, Tx-148-B.- South, **$3,750,000**. Roy M. Krezdorn, Box 935, Austin, six and Douglass & Popham, 332 S. Michigan Ave., Chicago, Ill., consult. engrs. CD 6/19/61.

PUBLIC BUILDINGS

▲ **Ark., Little Rock**—State Hospital for Nervous Diseases, Markham and Elm Sts., plans by Wittenberg, Delony & Davidson, 510 Center St., ADMINISTRATIVE BLDG. OFFICES, 477 bed wards, kitchen, **$6,048,440**. CD 12/5/60.

▲ **Calif., Fresno**—Fresno City Unif. School Dist., 2348 Mariposa St., plans by Robert W. Stevens, 944 N. Van Ness, concrete block, tilt-up concrete Herbert Hoover HIGH SCHOOL, Barstow and 1st Sts. **$3,500,-000**. CD 1/9/56.

▲ **Calif., Northridge**—State Div. Architecture, 1120 N St., Sacramento, ADMINISTRATION-CLASSROOM BLDG., San Fernando Valley State College. **$3,400,-000**. Bids April-June 1962.

▲ **Calif., Pomonc**—State Div. Architecture, 1120 N St., Sacramento, ENGINEERING BLDG. $5,000,000. Bids April-June 1962; men's GYNASIUM and SWIMMING POOL, **$1,700,000**, Bids April-June 1962. CD 6/3/55; SURF. PARKING, **$200,000**, Bids January-March 1962, CD 1/10/58. California State Polytechnic College, Kellogg-Voorhis Campus.

▲ **Calif., San Diego**—State Div. Architecture, 1120 N St., Sacramento, CLASSROOM BLDG. ADMINISTRATION and MATHEMATICS, **$3,500,000**. Bids April-June 1962, CD 6/3/55; BOILER PLANT ADDN. **$100,000**, Bids November-December 1961; SITE DEVELOPMENT, PARKING, **$150,000**. Bids January-March 1962, at San Diego State College. CD 5/6/60 and 12/4/58.

▲ **Calif., Santa Ana**—Santa Ana School Dist., 1405 French St., **$14,915,000** bond election Oct. 31, SCHOOLS. (Four Year Program.)

▲ **Calif., Tehachapi**—State Div. Architecture, 1120 N St., Sacramento, Tehachapi Branch California INSTITUTION for MEN, State Dpt. Corrections. **$10,000,-000**. Bids April-June 1962.

▲ **Idaho, Moscow**—University of Moscow, Moscow, plans by Wayland & Cline, Idaho Bldg., Boise, 4 story DORMITORIES and CAFETERIA COMPLEX for 1,000 students. $5,165,371. CD 3/15/54.

▲ **Ill., Ottawa**—La Salle County Housing Auth., Courthouse, 229-unit low-rental HOUSING. Over **$2,-500,000**.

▲ **N. J., Newark**—Bd. Educ., 31 Green St., plans by Fava & Saunders, 30 James St. Barringer HIGH SCHOOL, **$5,000,000**. A. A. Abdalian, 468 Park Ave. South, New York 16, N. Y., struc. engr. Visco Franzblau Assocs., 114 Liberty St., New York 6, N. Y., mech. engrs. CD 2/24/61.

▲ **N. J., Trenton**—New Jersey Division Purchase & Property, State Hous plans by Alfred Clauss, 114 W. State St., DEPARTMENT HEALTH and AGRICULTURE, $5,000,000. Engineers, Inc., 20 Mount Pleasant Ave., Newark, mech.-struc. engrs. Bids in December. CD 3/27/61.

▲ **N. Y., Brooklyn**—New York City Housing Auth., 299 Broadway, New York, Zone 7, plans by Pomerance & Brienes, 630 Third Ave., New York, Zone 17, Proj. NYS-109, three 14 story Bernard Haber Houses APARTMENTS, West 24 and West 25 Sts., Surf Ave. and Riegelmann Boardwalk, Coney Island Section. **$4,692,000**. James Ruderman, 32 Union Sq., New York, Zone 3, struct. engr. Jos. Loring Assocs., 25 W. 45 St., New York, Zone 36, mech. engrs. CD 9/21/60.

▲ **N. Y., Brooklyn**—New York City Housing Auth., 299 Broadway, New York, Zone 7, plans by Holden, Egan, Wilson & Corser, 630 3 Ave., New York, Zone 17, Proj. NYS-100, six 21 story, 750 apartments INDEPENDENCE HOUSES, Clymer St., Wilson St., Wythe Ave. and Bedford Ave. **$8,915,000**. Severud-Elstad-Krueger, 415 Lexington Ave., New York, Zone 17, struct. engrs. Carlson & Sweatt, 43 Exchange Pl., New York, Zone 5, mech. engrs. Bids early 1962. CD 11/22/60.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Ballard, Todd & Snibbe, 123 E. 77 St., Zone 21, Proj. NY-5-62, seven 30 story, 1,700 unit, low-rent APARTMENTS, Polo Grounds Site, 17 acres bounded by Highbridge Park, Colonial Park Houses, W. 155 St. and Eighth Ave. **$29,750,000**. CD 3/15/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Chapman Evans & Delehanty, 50 Broadway, Zone 4, N. Y., Proj. NY-5-59, 20 story, 156 unit APARTMENT, Amsterdam Ave. between W. 100, W. 101 Sts. **$3,000,000**. A. L. Delaney & Assocs., 147 W. 35 St., Zone 1, struct. engrs. Syska & Hennessey, Inc., 144 E. 39 St., Zone 18, mech. engrs. Bids early 1962. CD 4/7/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Chapman Evans & Delehanty, 50 Broadway, Zone 4, N. Y., Proj. NY-5-37, Gouverneur Morris HOUSES, Section II, three 20 story and four 16 story apartments, E. 169 St., E. 171 St., Park Ave., Third Ave., Bronx Boro. **$9,000,000**. Syska & Hennessey, Inc., 144 E. 39 St., Zone 18. Bids Spring 1962. CD 2/28/58.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Greenberg & Ames, 303 Park Ave. S., Zone 10, N. Y., Proj. NY-5-50, John P. Mitchell HOUSES, Sec. I, five 20 story apartments, Sec. II, four 20 story apartments, Lincoln and Willis Aves., E. 135 and E. 138 Sts. **$28,-175,000**. Greenhut & Taffel, 114 E. 32 St., New York 16, N. Y. struct. engrs. Guy B. Panero, 630 Third Ave., New York 17, N. Y., mech. engr. Bids Ec. I, Summer 1962.

▲ **N. Y., New York**—New York City Housing Auth. 299 Broadway, Zone 7, plans by Gustave W. Iser, 95 Madison Ave., Zone 16, Proj. NY 5-63, 21 story (center of block) and 19 story (northwest corner East 27 St. and Second Ave.) total 275 unit APARTMENTS. **$4,920,000**. Robt. Rosenwasser, 375 5 Ave., Zone 16, struct. engr. V. L. Falotico & Assocs., 26 Court St., Brooklyn, Zone 2, mech. engrs. CD 7/25/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Seymour R. Joseph, 1841 Broadway, New York 23, N. Y., Proj. NY 5-28, five 21 story 600 unit Daniel Webster HOUSES, Webster and Park Aves., E. 168 and E. 169 Sts., Bronx Boro. **$10,780,000**. Weinberger, Frieman, Leichmann & Quinn, 20 Vesey St., New York 7, N. Y., struct. engrs. E. U. Markush, 443 Park Ave. S., New York 16, N. Y., mech. engr. Bids Summer 1962.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Katz, Weisman, Blumenkranz & Weber, Archts. Assoc., 551 5 Ave., New York 17, N. Y., Proj. NYS-81, three 20 story Alexander Hamilton HOUSES, Section II, W. 141 St., W. 144 St., 7 and 8 Aves. **$18,000,000**. Farkas & Barron, 5 Beekman St., New York 38, N. Y. struct. engrs. Carlson & Sweatt, 43 Exchange Pl., New York 5, N. Y., mech. engrs. Bids Summer 1962.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by William Lescaze, 211 E. 48 St., New York 17, N. Y., Proj. NY 5-56(2), 20 story, 168 unit HOUSING, 647 Columbus Ave. between W. 91 and W. 92 Sts. **$3,000,000**. A. A. Abdalian, 468 Park Ave. S., New York 16, N. Y., struct. engr., Mayer Assocs., 110 E. 30 St., New York 16, N. Y., mech. engrs.; plans by DeYoung Moscowitz & Rosenberg, 205 E. 42 St., New York 17, N. Y., Proj. NY 5-56(3), 18 story 168 unit HOUSING, 589 Amsterdam Ave. between W. 88 and W. 89 Sts. **$3,000,000**. Weiskopf & Pickworth, 230 Park Ave., New York 17, N. Y., struct. engrs. S. W. Brown, 405 Lexington Ave., New York 17, N. Y., mech. engr. CD 4/7/61.

▲ **N. Y., New York**—New York City Housing Auth., 299 Broadway, Zone 7, plans by Tippetts-Abbett-McCarthy-Stratton, 375 Park Ave., Zone 22, Proj. 5-60, six 6 story and undetermined number two and 3 story Boston Secor HOUSES, IRT Dyer Ave. Line, Boston Rd., Steenwick Ave., Bronx Boro. **$8,780,000**. Jos. R. Loring & Assocs., 25 W. 45 St., Zone 36, mech. engrs. Bids Spring 1962. CD 8/3/59.

▲ **Pa., Phila.**—Dpt. Procurement, City Hall Annex plans by Vincent G. Kling, 917 Corinthian Ave., MUNICIPAL SERVICES BLDG. **$16,300,000**. McCormick, Taylor Assocs., Suburban Station Bldg., consult. engrs. Bids early 1962.

▲ **Tex., Commerce**—East Texas State College, Commerce, plans by Geo. L. Dehl, 2101 N. St. Paul St., Dallas, 12 APARTMENTS, STUDENT CENTER, **$3,910,000**. CD 10/24/60.

▲ **Wis., Wood**—Veterans Admin. Design Service, Munitions Bldg., Wash. 25, D. C., plans by Brust &

Brust, 1212 West Wisconsin Ave., Milwaukee, Zone 3, and Urbahn & Brayton, 635 Madison Ave., New York, N. Y., 10 story, 90,000 sq. ft. H-shaped VETERANS HOSPITAL. $22,000,000. Syska & Hennessey, Inc., 144 East 39th St., New York 18, N. Y., mech. engr. DiStasio & Van Buren, 4 Albany St., New York 6, N. Y., struc. engrs. Michael Burris, 485 Engle St., Englewood, N. J., site engr. CD 2/6/61.

COMMERCIAL BUILDINGS

▲ **Calif., La Jolla**—Bd. Dirs. Scripps Memorial Hospital, 464 Prospect St., plans by Charles Luckman & Assoc., 9220 Sunset Blvd., Los Angeles, 7 story, 250-bed HOSPITAL, Torrey Pines Mesa, 40 acre, Miramar Rd., east of Hy. 101. $5,500,000. CD 5/25/60.

▲ **N.J., West New York**—Kratter Corp., 521 Fifth Ave., New York 17, N.Y., plans by Stanley Horowitz, 45 Park Ave. E., Merrick, N.Y., 22 story Tower APARTMENT, six level garage, 60 St. and Blvd. East. $6,000,000. Gilbert Meyers, 220 West 42nd St., New York 36, N. Y., mech. engr. Albert Tischler, 101 Park Ave., New York 17, N.Y., struc. engr. CD 10/17/60.

▲ **N. Y., Brooklyn**—Lindsay Park Housing Corp., Stanley Harte, Sponsor, 350 Fifth Ave., New York, Zone 16,, seven 22 story APARTMENTS and five 1 story COMMERCIAL BLDGS., Montrose, Manhattan, Union Aves. and Broadway. $47,300,000.

▲ **N. Y., Buffalo**—Ransom Management Corp., c/o Robert B. Barrett, Manufacturers & Traders Bldg., plans by Duane Lyman & Assoc., 505 Delaware Ave., Buffalo, N. Y., two 22 story APARTMENTS, incl. 177-car underground parking, 147 North St. $20,000,000. S. J. Kessler & Sons, 551 Fifth Ave., New York, consult. engrs.

▲ **N. Y., Flushing**—Salvation Army, 120 W. 14 St., New York, Zone 11, plans by Kelly & Gruzen, 10 Columbus Circle, New York, Zone 19, Williams Memorial RESIDENCE for the AGING, Booth Memorial Hospital, $3,500,000, Kallen & Lemelson, 1860 Broadway, New York, Zone 23, N.Y., mech. engrs. Lev Zetlin, 114 E. 32 St., New York, Zone 16, struct. engr. CD 9/16/60.

▲ **N. Y., New York**—Columbia Broadcasting System, Inc., 485 Madison Ave., Zone 22, plans by Eero Saarinen & Assocs., 1300 N. Woodward Ave., Birmingham, Mich., 36 story OFFICE, 51 W. 52 St. $20,000,000. Severud-Elstad-Krueger, 415 Lexington Ave., Zone 17, consult. engrs. Constr. 1962. CD 10/19/60.

▲ **Tex., Houston**—Daniel D. Kobbe & Associates, 1612 Bissonnet St., plans by Lucian T. Hood, Jr., 1612 Bissonnet St., APARTMENTS, Richmond Rd. and Braeburn Drive, $6,000,000; SHOPPING CENTER, $450,000.

▲ **Wash., Seattle**—Providence Hospital, 17th Ave. and E. Jefferson St., plans by Naramore, Bain, Brady & Johanson 904 7th Ave., UNDERGROUND HOSPITAL ADDN. for surgical facilities. $5,000,000. CD 6/26/61.

INDUSTRIAL BUILDINGS

▲ **Fla., Brooker**—The Houston Corp., P.O. Box 10400, St. Petersburg, LIQUID HYDROCARBON EXTRACTION PLANT, $6,250,000.

▲ **Ill., Granite City**—Bi-State Development Agency, 915 Olive St., St. Louis 1, Mo., 4,200,000 bu. rein.-con. GRAIN STORAGE ELEVATOR, related facilities, Granite City Harbor, Chain of Rocks Canal, $5,300,000. Weitz-Hettelsater, Engineers, 1911 Baltimore Ave., Kansas City, Mo., consult. engrs. Illinois Grain Corp., lessee. CD 7/27/60.

▲ **Tex., Goliad**—South Texas Electric Cooperative, Inc., P.O. Box 2178, Victoria, 44,000 kw. electric steam generating PLANT, $7,750,000; ELECTRIC plant repair shop, Tex-148B-South, $250,000. Roy Krezdorn, Box 935, Austin Tex.; and Douglass and Popham, 332 S. Michigan Ave., Chicago, Ill., consult. engrs. CD 6/19/61.

PUERTO RICO

▲ **Puerto Rico, San Juan**—Atlantic Hotels, Inc., c/o Bruce Edenton, Box 1248, 14 Locust St., Jackson, Tenn., Holiday Inn HOTEL. $3,000,000.

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FOREIGN

▲ **Ceylon**—Dpt. Governmental Electricity Undertakings, Colombo, POWER EXPANSION PROJ., (1) 50,000 kilowatt hydroelectric generating station, Kehelgamu River, Norton Bridge; (2) 25,000 kw second generating unit addn., Grandpass Thermal Station near Colombo, (3) transmission line extension, 95 mi. south to Galle and 50 mi. north from Balowatta to Puttalam, (4) 200 mi. low voltage transmission line and 200 substations in Colombo area. $32,500,000. (Recent loan from World Bank $15,000,000). CD 7/28/58. For additional reports see CONSTRUCTION DAILY NEWSLETTER.

(Proposal Advertisements see pp. 61 to 63)

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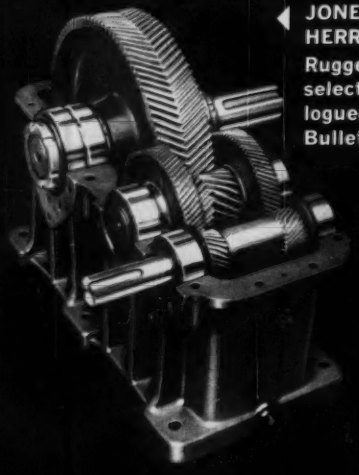

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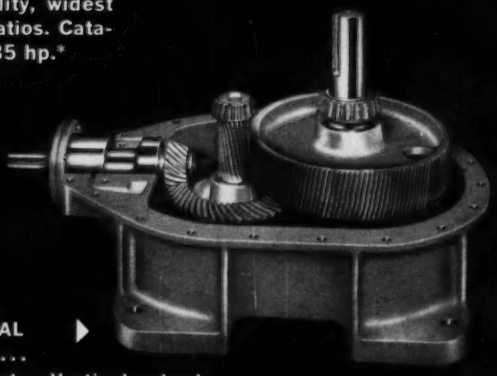

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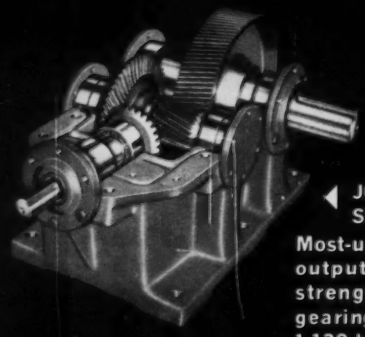

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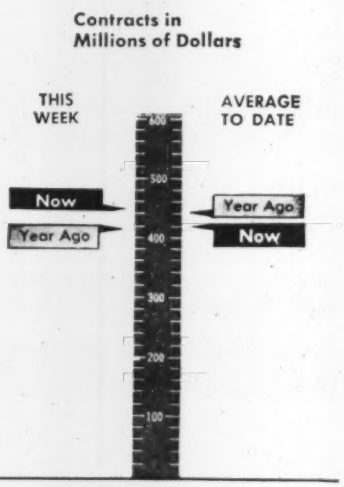
Construction Scoreboard

This Week . . .



AMOUNT OF CONTRACTS LET

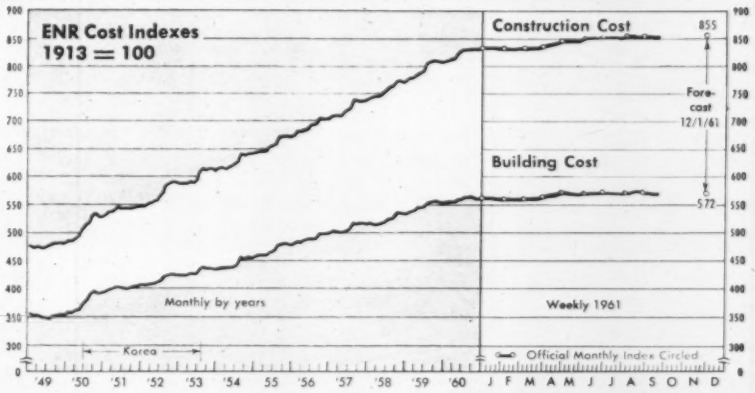
Contracts Awarded In 50 States By Type	This Week millions	Cum. 39 wks 1961	Chge '60-'61 %
All Heavy Construction	$416.9	$16,671.5	− 3
By Ownership			
PRIVATE	251.5	8,127.5	−11
PUBLIC	195.4	8,544.0	+ 5
State & Municipal	169.1	6,631.9	+ 6
Federal	26.3	1,912.1	+ 4
By Type of Work			
PUBLIC			
Waterworks	7.8	295.4	−19
Sewerage	9.8	570.8	+29
Bridges*	14.4	492.8	−23
Highways	92.1	2,898.1	+13
Earthwork, Dams & Waterways	14.5	618.1	+ 2
Buildings:			
Excl. Housing	37.1	2,009.7	+ 9
Housing	5.2	634.5	+20
Unclassified	14.5	1,025.1	−10
PRIVATE			
Buildings:			
Mass Housing	119.1	3,754.0	−15
Commercial	65.5	1,987.8	+ 6
Industrial	33.3	2,037.9	− 4
Unclassified	33.6	347.3	−47

* Includes Private bridges

NOTE: Minimum size projects included are: Waterworks and waterways, $53,000; other public works, $88,000; industrial buildings, $110,000; other buildings, $400,000.

NEW CONSTRUCTION CAPITAL

	Week of Sept. 21 millions	Cum. 38 wks 1961	Chge '60-'61 %
Corporate Securities	$ 50.9	$2,452.2	+ 8
State & Municipal:			
All Except Housing	131.8	4,852.6	− 1
Housing	0	98.9	−47
Federal Loans	2.7	191.4	+50
Federal Aid	248.2	3,313.6	+22
Total Nonfederal	433.5	$10,908.6	+ 7
Federal Appropriations:			
Projects in U.S.	$1,229.1	$1,743.2	−32
Outside U. S.	86.6	88.9	−44
Total New Capital	$1,749.1	$12,740.8	− 1


ENR Cost Indexes
1913 = 100
Construction Cost
855
Forecast 12/1/61
Building Cost
572
Monthly by years
Weekly 1961
Korea
Official Monthly Index Circled
'49 '50 '51 '52 '53 '54 55 '56 '57 '58 '59 '60 J F M A M J J A S O N D

ENR INDEXES (1913 = 100), 20-cities' average	Week of Sept. 21 1961	% Change from Aug. 24 1961	% Change from Sept. 22 1960
Construction Cost	853.36	−0.1	+2.8
Building Cost	570.23	−0.2	+1.5

To convert above indexes to 1926 = 100: Divide Construction Cost by 2.080; Building Cost by 1.850. 1949 = 100: Divide Construction Cost by 4.770; Building Cost by 3.518.

Latest Month . . .

BACKLOG OF PROPOSED HEAVY COSTRUCTION

	August 1961 (millions)	Percent Change from last Month	Year
Total U. S. (ENR reported)	$125,641	+0.4	+1.4
By Ownership—			
Private	57,891	+1.4	+3.5
State & Municipal	54,186	−0.4	+1.0
Federal	13,564	−0.6	−5.1
By Type of Work—			
Waterworks	3,119	−0.2	+8.0
Sewerage	4,289	−0.6	+8.7
Bridges	3,154	−0.6	−4.9
Highways	13,095	−0.2	−4.4
Earthwork, Dams and Waterways	11,946	−0.1	+0.8
Public Buildings	22,520	−0.7	+1.0
Industrial Buildings	18,138	+1.1	−0.4
Commercial Buildings	28,928	+2.3	+7.2
Unclassified, Private	10,825*	−0.5	+0.4
Unclassified, Public	9,627	−0.5	−3.3

* Includes Private Bridges, $101 million.

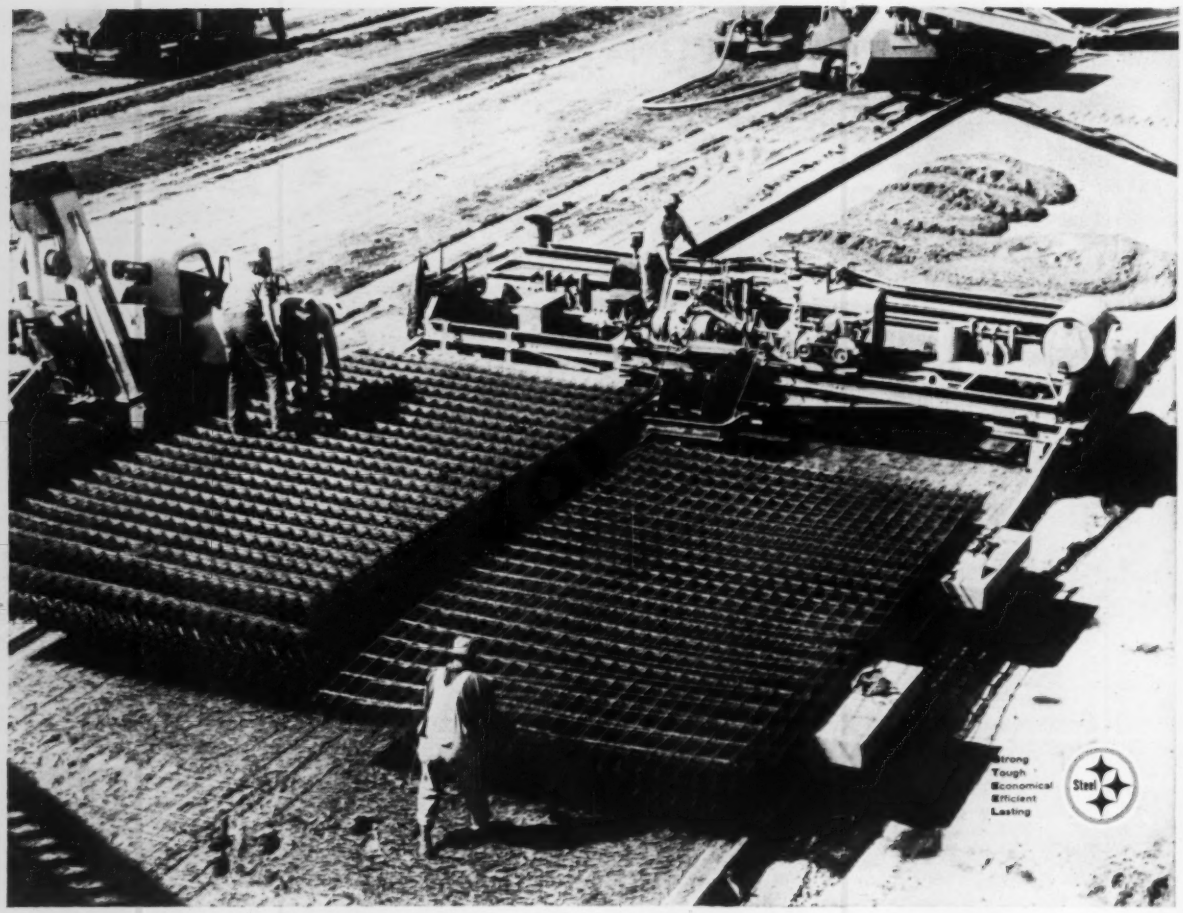
FLOW OF NEW PROJECTS INTO THE BACKLOG

	1961 Aug. (millions)	1961 8-months (millions)	Percent Change from 1960 Aug.	8-Mos.
Total U. S. (ENR reported)	$2,132	$14,216	+ 1	−10
By Ownership—				
Private	1,513	8,507	+15	− 5
State & Municipal	588	5,276	+12	− 5
Federal	31	433	−89	−63
By Type of Work—				
Waterworks	32	502	−32	+99
Sewerage	49	598	−26	+34
Bridges	18	182	+293	+13
Highways	195	896	+33	−51
Earthwork, Dams and Waterways	28	344	−28	+88
Public Buildings	251	2,788	−25	− 7
Industrial Buildings	357	2,709	−44	+ 3
Commercial: Mass Housing	810	2,682	+212	−29
Other Building	329	2,451	+33	+22
Unclassified, Private	17	665**	−90	+ 7
Unclassified, Public	46	399	−73	−56

** Includes Private Bridges, $0.5 million.

FLOW OF PROJECTS OUT OF BACKLOG INTO CONTRACTS

Total U. S. (ENR reported)	1,034	7,725	+28	+ 4
By Ownership—				
Private	359	2,831	+ 9	+10
State & Municipal	596	3,716	+67	+14
Federal	79	1,178	−33	− 2



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FHA Holds Firm on Interest Rates

The Administration for the time being is resisting pressures in the money markets that tend to force up interest rates on government-insured home mortgages.

A White House meeting of officials of the Treasury, housing agency, and Council of Economic Advisers decided —for the time being—that the maximum permissible interest rate on FHA-insured mortgages would be kept at 5¼% where it has been since May.

The meeting resulted after officials noted that FHA-insured mortgages were representing a smaller share of the total housing market in terms of units started this year.

The Administration put the ceiling at 5¼% as part of its anti-recession drive to lower long-term interest rates in order to help housing construction and other long-term investment. Now, however, the briskness of the business recovery tends to push up these rates as the demand for funds increases.

This situation is reflected in the discounts on FHA-insured mortgages in the secondary markets, and in surveys of the interest rates now paid on conventional loans.

FHA surveys taken on the first of the month in January and February this year, when the FHA ceiling was 5½%, show net prices for FHA mortgages were around $98. After the rate-cut in February from 5½% to 5¼%, prices dropped to a range of $97.60-$97.90 in April and May. And after May's reduction to 5¼%, prices on 25-year, 90%-of-value loans dropped to $96.60 in August and $96.50 this month. And discounts from face undoubtedly ran even steeper on mortgages with larger loan-to-value ratios and maturities longer than 25 years.

At the same time, interest rates on conventional mortgages are firming up. The Federal Home Loan Bank Board found that the average interest rate charged by some 200 large savings and loan associations moved up a notch to 6.03% in August. The average was 6.02% in July, and 6.14% in August. At the same time, fees, commission charges, etc., as a percentage of the loan have been rising.

Interest rates on construction loans, however, have been dropping, according to the Board. The August survey showed a 5.99% average rate, compared to 6.17% in July.

Housing starts dropped in August to seasonally adjusted annual rate of 1.3 million.

FHA Commissioner Neal Hardy last week estimated that starts this year might wind up about 3% above last year's 1,274,000 total non-farm housing starts.

FHA-insured housing has accounted for 17% to 20% of total starts this year. The figure was 20% for August, up from 18% in July. Housing starts backed by VA loans or VA insurance have been running about 6% of the total for several months.

City May Aid Federal-Aid Job

To speed construction of an expressway highway in the city, Memphis plans to make an interest-free loan to the state. Under the state's financing schedule, the highway would not be completed until 1967. By providing the needed construction funds, the project could be completed next year.

Plans call for the city to sell $65 million worth of bonds. The funds obtained then would be loaned to the state to be paid back as Tennessee receives its federal-aid funds.

Interest charges on the bonds sold by the city, would be absorbed by Memphis. City officials say completion of the highway five years before existing schedules will provide $609 million in user benefits.

St. Paul, Minn., is apparently the only other city actually financing road construction in anticipation of later state and federal reimbursements.

Several states have also considered selling bonds in anticipation of federal reimbursements as a means of speeding their over-all highway programs. Only Connecticut, however, has adopted the method as a major method of financing highway construction.

Business in Brief . .

• **More consultants' business**—The Ohio Highway Department now may hire consulting engineers for design of all primary highway routes when cost exceeds $1 million. Under the old law just amended, consulting engineering services for road work were limited to primary routes outside of cities.

• **Big spender**—California's state building program during the current fiscal year calls for outlays of $106 million, split about evenly between the northern and southern sectors. Largest single project will be a $14.4-million general office building in Sacramento.

• **Marketing center**—Developers of a planned $50-million marketing center in Los Angeles say the first 13-story unit will get under way early next year. Cost estimates of this first structure run to $16 million. Complex will consist of a second tower rising 20 stories, a 16-story hotel, a bank building and an exhibition hall. Developers are Barney and Harvey Morse.

• **Building in Pennsylvania**—Value of building construction in Pennsylvania in this year's first six months totaled nearly $400 million, according to the Pennsylvania Labor and Industry Department.

• **A good job**—San Diego's City Manager George Bean recommended that Sam Hamill be retained as supervising architect for the city's proposed Center City redevelopment project. Mr. Bean recommended that Mr. Hamill be given a one-year, $125,000 contract with a second-year renewal option.

• **Steel company boosts spending**—Jones & Laughlin Steel Corp., Pittsburgh, last week announced a $125-million expansion program for its hot strip mills in Pittsburgh and Cleveland. It could bring total outlays to $250 million in the years 1962 to 1965.

UAW Strike Threatens Equipment

- **UAW pushes for benefits won in "non-inflationary" GM contract**
- **Federal conciliator to help forestall walk-out at Harvester**

With slow progress in collective bargaining threatening a United Auto Workers' strike against construction machinery and farm equipment manufacturers, International Harvester Co. announced its first pay raise and new contract offer Monday.

In a further effort to speed up negotiations, the Federal Mediation and Conciliation Service appointed Douglas D. Brown as mediator at the request of both the company and the union.

Duane (Pat) Greathouse, UAW vice president and chief negotiator for the union's District 4 implement and machinery workers, directed local unions to take strike votes at 22 Harvester facilities. He told them to complete the strike votes by today.

Harvester, like General Motors in the auto industry, has been put on the front burner in the equipment negotiations. Union strategy is to establish a pattern with Harvester and then impose it on Caterpillar Tractor Co., Deere and Co. and Allis-Chalmers Manufacturing Co. Present labor contracts with Harvester, Caterpillar and Deere expire October 1 and the one with Allis-Chalmers on November 1.

Mr. Greathouse attributed last week's call for a strike vote against Harvester to the slow progress being made in the negotiations for a new contract. He warned that a strike is very possible if no contract is reached by October 1. Some 35,000 workers would be affected.

The union's demands on Harvester have included the principles, wages and fringe benefits included in the new GM and American Motors Co. contracts.

William J. Reilley, Harvester labor relations manager, said Harvester would not agree to profit-sharing (a key provision in the AMC contract)—and union sources conceded privately that profit-sharing is not an issue. A close approximation of the GM settlement is, however, of extreme importance to the union.

This means that the pressure is on the equipment manufacturers to come across with what the UAW has called "important steps toward the realization of a guaranteed annual wage" and "salary treatment for hourly workers." To UAW President Walter Reuther, this means giving the hourly worker a bigger share of industrial "profitability" in terms of income and of job and income security. Mr. Reuther claims that unjustifiably large proportions of "profitability" flow to executives, stockholders and white collar workers, particularly in what he calls the "glorified, gold-plated sweatshop" of GM.

The terms of the new three-year GM contract have "brought an approximation of these goals," according to the UAW.

Among other things, the GM contract grants an annual wage increase of 6 cents an hour or 2½%, whichever is greater, by continuing the annual improvement factor; provides for 65% of straight-time pay for each hour not worked under 40 in a scheduled short workweek; extends supplementary unemployment benefits (SUB) to 52 weeks, and ups the benefits to 80% of take-home pay when combined with unemployment compensation; and improves health and welfare, pension and vacation benefits.

In addition to winning the economic gains that were agreed to in principle on September 6, the union settled with GM last week on a number of non-economic issues to complete the national GM package, which does not cover issues that are purely local in nature.

This part of the settlement applies some brakes to the speed at which assembly lines can be run and places a slight curb on arbitrary calls for overtime work. It limits the performance by foremen of work that properly belongs to members of the bargaining unit. And it contains a clause against racial discrimination in employment.

The UAW calls the contract a pioneering approach to "human problems."

Added to the headaches faced by the equipment makers when the GM contract is pushed as a "pattern" is the

Lockout Not Like Strike,

The right of contractors to engage in a lockout is not a right that parallels the right to strike, according to the Tenth Circuit Court of Appeals.

The court has ruled that a 1959 lockout by the Utah Plumbing & Heating Contractors Association during collective bargaining was illegal because of the absence of the special circumstances required to legalize a lockout.

Although the court failed to spell out what the special circumstances must be, it indirectly fashioned a yardstick of sorts by saying that the lockout was illegal because of three principal factors:

- The negotiations had not been terminated.
- A strike had not been called or threatened.
- The contractors faced no "critical operational problem or hazard of economic loss."

The lockout against four Salt Lake City locals of the plumbers union was called on April 1—the day after the old labor contract expired. On March 30, the contractors had made a settlement offer, but on condition that a lockout would be called after the contract's termination unless the union negotiators assured the contractors that they would urge the union membership to accept the offer.

The unions had the authority to call a strike after the old contract expired if the offer was rejected and no better offer was received. No strike threats were made. The union negotiators, however, refused to promise that they would push the offer for acceptance among union membership.

They did offer to continue working until a vote could be taken on the offer, which would be done as soon as a meeting could be called.

It was conceded, the court said, that the lockout was intended to exert economic pressure on the employees and the unions to accept the offer. The unions did knuckle under, accepted the March 30 proposal and signed a new contract on April 4, when the lockout was called off.

The unions started the case by filing an unfair labor practice charge. The National Labor Relations Board held the lockout illegal.

That decision was appealed to the

Makers

fact that the UAW insists the agreement is "non-inflationary."

"Every cent of the cost can come out of increased technological productivity and the highly favorable profit position of General Motors Corporation," the UAW contends, with no price increase.

In reaching this conclusion, the UAW uses the premise that the factors that make something inflationary or non-inflationary are relative factors with considerable room for give and take.

The union asserts, for example, that before profits were computed last year 59 GM officers and directors received total compensation in excess of that received by all the following 608 government officials: President of the United States, Vice President, all U.S. senators, all U.S. congressmen, all U.S. Supreme Court Justices, all U.S. Cabinet members, and all the state governors. The bonuses paid to GM executives alone, the UAW argues, would have given every hourly rated GM worker in the U.S. a wage increase of 12.6 cents an hour.

In the union's jargon, the inflation test involves the balancing of "equity."

Says Court

Circuit Court on the single ground, the court said, that an employer "may use the economic weapon of a lockout at the termination of a contract with a union as a corollary of a strike which may be used by a union at any time its member see fit."

The court rejected this argument.

It said that federal labor law does not expressly permit or forbid lockouts, and that lockouts are legal under certain circumstances not spelled out in the law.

All the Taft-Hartley Act does on this point, the court explained, is give workers the right to bargain collectively (Section 7) and make it an unfair labor practice for employers to interfere with that right (Section 8). It is up to the courts to decide whether a lockout amounts to "interference."

In the present case, the court said, the circumstances were such as to make the lockout a "wrongful interference with the right of collective bargaining."

As a penalty for their "unfair labor practice," the contractors had to pay members of the unions the wages they lost during the lockout.

Labor in Brief . . .

• Management rights—Ruling against the laborers union in a dispute with the Seattle chapter of Associated General Contractors, an arbitrator has held that a contractor need not have all his hod carriers on the job at double time 30 minutes ahead of the plasterers to mix the mud. It is the employer's prerogative, he said, to determine how many men to use on a job and when to do it.

• Prison labor—Fourteen state prisoners were removed from a job of renovating new headquarters for the Rhode Island Department of Social Welfare after the Allied Building Trades Council filed a protest with Gov. John A. Notte. But in Oregon, Gov. Mark Hatfield was outvoted in his effort to prevent use of convict labor on two state buildings—one a $356,000 women's prison unit.

• Equal job opportunity—In a mid-month report on the progress of his department in insuring elimination of racial discrimination in employment and promotion, Michigan Highway Commissioner John C. Mackie said non-discrimination clauses are now a part of all highway department contracts and "are being discussed with representatives of Michigan's roadbuilding industry."

• Hot-cargo—The constitutional issue of whether the Landrum-Griffin ban on hot-cargo agreements is a violation of "due process" may be raised in an Atlanta, Ga., teamster case still before the National Labor Relations Board. A trial examiner has ruled that union refusal to handle shipments for a firm that refused to sign a circumventing hot-cargo clause in a violation of the ban.

Strikes Hit Titan ICBM Sites

The presence of a nonunion contractor at the Titan complex at Lowry Air Force Base, east of Denver, Colo., has upset the labor peace progress achieved by President Kennedy's Missile Sites Labor Commission.

Between September 8 and 18, nine different construction trades engaged in sporadic work stoppages on several of the six Titan sites. The demonstrations were aimed at Amco Fence Co., a Houston, Tex., firm erecting 6.3 miles of steel link fencing around the six sites.

The stoppages, which occurred in violation of labor's no-strike pledge, reportedly piled up in less than two weeks three times as many lost man-days as were lost on all the missile sites in the nation during the month of August.

The local Missile Site Labor Committee tried and failed to resolve the dispute. The dispute was then referred to the Missile Sites Labor Commission, where it was still pending last week.

Sherman Hodges, secretary-treasurer of the Northern Colorado Building and Construction Trades Council, AFL-CIO, said the unions were protesting the fact that Amco was not meeting existing labor conditions in the Denver area. The AFL-CIO unions, he explained, want Amco to pay an hour's pay daily as travel allowance, 10 cents an hour for health and welfare, and premium pay for overtime—all of which, he said, other employers at the site pay to union employees.

A spokesman for Amco said the company bid on the job in accordance with wage scales and benefits specified by the government and is conforming with these specifications.

Mr. Hodges' contention is that Amco may be paying prevailing hourly wage rates as required by the Davis-Bacon Act "but that's all." (The Davis-Bacon Act does not require the payment of prevailing fringe benefits.)

Amco has been performing the work with a mixed crew of union and nonunion men, none of whom was working at the time of the dispute under a union contract with Amco, according to a company spokesmen. Most of the union workers were reportedly from Beaumont, Tex.

Mr. Hodges, who tried to keep the dispute from erupting into a strike, denies that the issue is the presence of a nonunion contractor. He says the dispute is over payment of travel allowances, health and welfare and overtime.

Mr. Hodges, Labor Secretary Arthur Goldberg and J. H. Lyons, general president of the iron workers union, have all requested that the no-strike pledge be honored pending the Commission's consideration of the dispute. There was no indication last week as to how the Commission would solve the problem.

OFFICIAL PROPOSALS

Bids: October 5, 1961

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.,—Pursuant to the provisions of the Highway Law, and Canal Law, Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid Funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 5th day of October 1961, by Henry A. Cohen, Director, Bureau of Contracts, 12th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
DISTRICT No. 1, F. J. FULLER, District Engineer, 353 Broadway, Albany 1, New York						
Albany (Int. Trg. Rte. 87)	FIM 61-5	Interstate Route 502 (FISH 57-17, Albany to Latham) (Bridges over Central Ave.) Project I-87-3(48)	0.04	Experimental Glass Fiber Reinforced Resin Wearing Surface on Bridge Pavement	$3,500 Plans $5	$63,300
Saratoga (Rte. 67)	FARC 61-139	Ballston Spa-Scotch Church, Pt. 2, S.H. 5542 Project S-382(4)	4.29	Asphalt Concrete	$35,000 Plans $5	641,000
Saratoga (Rte. 67)	FARC 61-81	Scotch Church-Blue Corners, S.H. 817 Project S-382(3)	3.47	Asphalt Concrete 3.46 Mi.; Misc. Work 0.01 Mi.	$34,000 Plans $5	577,000
Saratoga (Rte. 197)	FASSH 61-19 FARC 61-141	Moreau-Reynolds Corners Reynolds Corners-Fort Edward, S.H. 1748 Project S-401(2)	3.61	Asphalt Concrete 3.60 Mi. Misc. Work 0.01 Mi.	$32,000 Plans $5	573,000
Warren (Rtes. 8 & 9)	RC 61-138	Riverside-Chestertown, S.H. 691 Loon Lake-Pottersville-Taylors, S.H. 692	6.66	Asphalt Concrete	$22,000 Plans $5	365,000
Washington	M 61-13	Canal Bridges in the Towns of Fort Ann & Fort Edward	....	Painting Undersides of 6 Canal Bridges	$260 No Plans $5 for 2 Proposals	5,000
DISTRICT No. 2, L. KETCHUM, District Engineer, 109 No. Genesee Street, Utica 1, New York						
Montgomery	M 61-12	Dam 6, Lock 10E West of Pattersonville	....	Rehabilitation of Protecting Apron	$11,000 Plans $5	215,000
Oneida	M 61-11	Schuyler St. Bridge (E-45) Over Erie Canal 1½ Miles West of Utica	....	Removal of Steel Superstructure	$220 Plans $5	4,000
DISTRICT No. 3, E. E. TOWLSON, District Engineer, 333 E. Washington Street, Syracuse, New York						
Onondaga (Rtes. 80, 91)	FARC 61-140	Vesper-Tully, S.H. 1070; Tully-Apulia, S.H. 489; Tully-Onondaga Castle, Pt. 2, S.H. 489; LaFayette-Tully, S.H. 5516; Fabius-Apulia, Pt. 3, S.H. 121; Fabius-Apulia, Pt. 1, S.H. 49; Fabius-Apulia, Pt. 2, S.H. 75; Fabius Road, S.H. 554; Fabius Village, S.H. 1043 Project F-549(3)	9.48	Asphalt Concrete Type 1A	$40,000 Plans $5	730,000
Oswego (Rte. 104A)	FARC 61-142	Sterling-Oswego, Pt. 2, S.H. 1046 Project F-535(3)	2.66	Asphalt Concrete Type 1A; Twin Closed Box Culvert 39.06'	$27,000 Plans $5	497,000
Seneca	FASSH 61-16	Magee-Halsey Corners (Old State Road) Project S-591(1)	4.16	9" Cement Concrete Pavt. 24' Wide	$57,000 Plans $5	1,027,000
Tompkins (Rte. 13)	FAC 61-18 FASH 61-18	City of Ithaca: North East Arterial Highway (Rosemary Lane-East City Line) Ithaca-Etna Project U-F-1144(2)	6.70 (2.38 Acc.)	9" Cem. Conc. Pavt., 2 @ 24', 3.34 Mi.; 9" Cem. Con. Pavt., 24', 3.35 Mi.; Acc. Cem. Conc. Pavt., 1.13 Mi.; Acc. Asph. Conc. 1.25 Mi.; Misc. Work 0.01 Mi.; 3 HGS 240', 226', 199'; 1 Br. 137'—All Comp.	$235,000 Plans $10	4,272,000
DISTRICT No. 4, B. F. PERRY, District Engineer, Barge Canal Terminal, Rochester 1, New York						
Livingston (Rte. 5)	RC 61-151	Caledonia-Avon, S.H. 5273 Avon-Lima, S.H. 5302	0.06	Bridge Repairs	$3,000 Plans $5	55,000
Monroe (Int. Trg. Rte. 490)	FITL 61-1	Interstate Route Connection 580; Rochester-Bushnell Basin, Pts. 1 & 2; FASH 54-1, FISH 56-9 Project I-490-2(10)	6.53	Electrical Lighting Facilities	$12,000 Plans $5	225,000
Monroe (Rte. 251 & 383)	FARC 61-146	Scottsville-Mumford, S.H. 5046 Scottsville-Chili, S.H. 5279 Project S-517(1)	6.49 (0.78 Acc.)	Asph. Concrete 7.27 Mi.; Repairing & Painting Bridge, Repairing Culverts	$45,000 Plans $5	814,000
Wyoming (Rte. 78)	FARC 61-143	Java Center-Java Village, S.H. 894; Java Village-Wales, S.H. 976A; Java Village-Wales, S.H. 976 Project F-1158(1)	3.63 (0.09 Acc.)	Asph. Conc. 3.56 Mi.; Misc. Work 0.16 Mi.; Repairs to Br. #1	$45,000 Plans $5	807,000
DISTRICT No. 5, E. G. H. YOUNGMANN, District Engineer, State Office Bldg., 65 Court St., Buffalo 2, New York						
Erie	FASS 61-10 FISS 61-11	Maple Rd. Extension (CR 192) & the Separation of Grades of Maple Road Extension (CR 192) with Powerline Expressway & Lehigh Valley R.R. Project S-250(3)	1.74	Asph. Conc. 1.74 Mi.; HGS Comp. I Beam, 4 Sps. 251'; RRGS Comp. I Beam, 3 Sps. 178'; 2 Reinf. Conc. Twin Box Culverts	$95,000 Plans $5	1,725,000
DISTRICT No. 6, W. J. DENNIS, District Engineer, State Office Bldg., 30 West Main St., Hornell, New York						
Allegany (Rte. 17)	FARC 61-144	Genesee-Portville, S.H. 1322 Project F-421(9)	5.36	9" Cement Conc. Pavt. 24' Wide	$84,000 Plans $5	1,526,000
Allegany (Rte. 408, 305)	FATC 61-4	Cuba-Friendship, S.H. 5174; Obi-Cuba, S.H. 965 Project F-294(3)	....	Traffic Signal	$1,200 Plans $5	21,000
Yates (Rte. 14A)	FARC 61-145	Penn Yan-Halls Corners, S.H. 5323 Project F-146(4)	3.12	Asph. Conc. 3.08 Mi.; Misc. Work 0.04 Mi.	$15,000 Plans $5	279,000
DISTRICT No. 8, M. N. SINACORI, District Engineer, Pleasant Valley Road, Poughkeepsie, New York						
Rockland	PIP 61-1	Palisades Int. Pkwy., Sec. 2 Palisades Int. Pkwy., Part 1	15.36	Aluminum Chain Link Fencing, 4' & 5' High	$8,000 Plans $5	152,000
Westchester (Int. Trg. Rte. 95)	FINET 61-2	Interstate Rte. 501 N. Y. State Thruway, New England Section (Subdivisions 2, 3, 4, and 5) Project I-95-2(11)	9.94	Roadway, Guide Rail and Drainage Improvement	$3,700 Plans $5	68,000
DISTRICT No. 9, J. C. FREDERICK, District Engineer, 71 Frederick St., Binghamton, New York						
Broome (Rte. 17)	FATS 61-22	Windsor-Deposit, S.H. 5338 Project F-344(29)	9.34 (3.09 Acc.)	Traffic Signs and Delineators	$2,000 Plans $5	34,000
DISTRICT No. 10, A. M. SARR, District Engineer, 325 W. Main Street, Babylon, L. I., New York						
Bronx (Int. Trg. Rte. 95)	FINETC 61-1	Int. Rte. Connection 511 N. Y. State Thruway, New England Section (Westchester Ave. to N. Y. C. Line) Cont. 6 Project I-95-1(45)	3.54	Misc. (Grading, Asph. Pavt., Stone Masonry, Curbs, Drainage, Bridge Repairs	$2,000 Plans $5	36,000
Nassau	PSC 10324	Elim. of Grade Xings of the L. I. R. R. with Various Streets in Hicksville (Main Line-Port Jefferson Division)	3.32 (0.53 Acc.)	Track Reloc., RR Sta. and Misc. 3.32 Mi.; Cem. Conc. Pavt. 0.16 Mi.; Asph. Conc. 0.37 Mi.; 8 R.R. Gr. Sepa. Pl. Girder; 1 Viaduct Reinf. Conc., I-Beam and Girder	$563,000 Plans $10	10,243,000
New York (Int. Trg. Rte. 478)	FILME 61-2	Int. Rte. Conn. 513 Lower Man. Expwy., Contract 2A (Canal St. to Manhattan Bridge) Project I-478-1(66)	0.15	East Ramp Man. Bridge, Cem. Conc. Pavt. 0.09 Mi.; Asph. Conc. 0.02 Mi.; Misc. Work 0.04 Mi.	$62,000 Plans $5	1,058,000
Queens (Int. Trg. Rte. 495)	FAVWE 61-3 FIHHE 61-1	Van Wyck Expwy. Extension, Contract 2 (57th Rd. to Rodman St.) Int. Rte. Conn. 514 Horace Harding Expwy. (Gr. Cent. Pkwy. Interchange to Van Wyck Expwy. Interchange) Project U-1085(21), I-495-1(49)	0.88 (2.77 Acc.)	8" & 9" Cem. Conc. Pavt. 2 @ 48' Var. = 2.55 Mi. Asph. Conc. = 1.02 Mi.; Misc. Work = 0.04 Mi.; Main Line Viad. 40 Sps. Comp., I-Beam 3029'; 4 Ramps 77 Sps. Comp. I-Beam 5822'; 1 Ramp Reinf. Conc. Slab 22 Sps. 440', Reinf. Conc. Box Sewer 365'	$670,000 Plans $10	12,222,000
Queens (Int. Trg. Rte. 678)	FIWE 61-1	Int. Rte. Conn. 515 Whitestone Expwy., Cont. 1 (Flushing River Bridge to Whitestone Bridge) Project EI-678-1(64)	1.95 (2.66 Acc.)	Asph. Conc. 4.19 Mi. 9" Cem. Conc. Pavt. 0.12 Mi.; Misc. Work 0.30 Mi.; HGS. Conc. Arch 2 Sps. 146' HGS. Comp I-Beam 2 Sps. 158'; HGS. Comp I-Beam and Prestressed Conc. 1323'	$530,000 Plans $10	9,676,000

(Continued on opposite page)

OFFICIAL PROPOSALS

(Continued from preceding page)

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
Queens	FAGCP 61-3	Grand Central Pky., Sect. 3, Contract 2 (150th St. to 172nd St.) Project U-629(20)	0.91 (1.62 Acc.)	8" Cem. Conc. Pavt. 0.87 Mi. Asph. Conc. 1.54 Mi.; Misc. Work 0.12 Mi.; 3 HGS. Welded Comp. Beam 101', 100', 100'	$425,000 Plans $5	7,781,000
Queens	FAGCP 61-4	Grand Central Pky., Sect. 3, Cont. 3A, (172nd St. to Clearview Expy.) Proj. U-629(21)	2.14 (2.07 Acc.)	8" Cem. Conc. Pavt. 3.08 Mi. Asph. Conc. 0.90 Mi.; Misc. Work 0.23 Mi.; Widen 2 HGS. Conc. Rig Fr. 1 @ 63.5' Sp.; 1 @ 108.75' Sp.; 2 HGS. Comp I-Beam; 2 Sp. 163' Tot.; 4 Sp. 188.3' Tot.	$270,000 Plans $10	4,917,000
Suffolk	HSP 61-1	Heckscher State Pkwy. Cont. 6 (Sunrise Highway to Heckscher State Park)	6.23	Roadside Improvement	$18,000 Plans $5	318,000

Any projects in this letting that are on the Federal Aid highway systems are subject to the provisions of the "Federal Aid Highway Act, of 1956", being Public Law 627, 84th Congress, approved June 29, 1956, and are also subject to the applicable New York State statutes.

In compliance with the provisions of Section 115 (Prevailing Rate of Wage), Public Law 627, the minimum wages to be paid laborers and mechanics are included in wage schedules that are set out in the bid proposal.

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

If the deposit is $10.00 or more, full refund for one copy of the plans and specifications will be made to a bidder for the particular project, if such plans and specifications are returned in good condition within 30 days after the award of the contract or after the rejection of the proposal. The successful bidder is not required to return the copy of the plans and specifications in order to be entitled to such refund. If the deposit is $10.00 or more, partial refund will be made for the return of all other copies of plans and specifications in good condition within 30 days after the award of the contract or the rejection of the proposal.

Special attention of bidders is called to "Information for Bidders" in the Public Works Specifications, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to priorities and allocations under the Defense Production Act of 1950, as Amended, and all regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Department of Public Works" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bid deposit, the execution of the contract and bond shall conform to the provisions of the Highway Law, as set forth in the "Information for Bidders".

The right is reserved to reject any or all bids.

J. BURCH McMORRAN
SUPT. OF PUBLIC WORKS

Bids: October 19, 1961

The Port of New York Authority

Sealed proposals for the following work will be received at the Office of the Chief Engineer, Room 1100, 111 Eighth Avenue, New York 11, New York, until 2:30 P.M. on date indicated, at which time said proposals will be opened and read in Room 1108.

Contract NYA-960.003—New York International Airport—150th Street Entrance Roadway—Grading and Surcharge Fill—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, October 19, 1961.

Contract GWB-190.053—George Washington Bridge—Lower Level Expansion—Stairways and Platforms—Deposit $30.00 per set of documents—Bids will be received until 2:30 P.M. on Thursday, October 19, 1961.

Contract documents may be seen at the Office of the Assistant Chief Engineer for Design, Room 1115, 111 Eighth Avenue, New York 11, N. Y. Documents will be furnished upon receipt of the above deposit (each set including one copy of the Contract Drawings) for not more than three sets to any one company. Additional sets will be furnished upon payment of an amount for each set equal to the deposit indicated above, which payment is not returnable. Deposits and payments shall be delivered to the Treasury Department, Room 1001, where a receipt will be issued. The receipt shall be delivered to Room 1115, where the documents will be furnished.

Those who have submitted a bid on the contract directly to the Authority will receive a refund of the deposit for each set of documents, not exceeding three, returned within forty days after the opening of proposals. Those who have not submitted a bid will receive a refund of one-half of the deposit for each set of documents, not exceeding three returned within forty days after the opening of proposals.

THE PORT OF NEW YORK AUTHORITY
S. Sloan Colt, Chairman

New York, September 28, 1961

Bids: October 31, 1961

Power Authority of the State of New York

ADVERTISEMENT FOR PROPOSALS
FOR
CONSTRUCTION OF OBSERVATION BUILDING AND RELATED FACILITIES FOR THE ROBERT MOSES NIAGARA POWER PLANT IN LEWISTON, NIAGARA COUNTY, NEW YORK

SPECIFICATIONS NO. PA-N-23043
NIAGARA CONTRACT NO. N 34

NOTICE TO CONTRACTORS: The POWER AUTHORITY OF THE STATE OF NEW YORK will receive sealed proposals for construction of the Observation Building and related facilities for the Robert Moses Niagara Power Plant, in Lewiston, Niagara County, New York, until 10:30 A. M. Eastern Standard Time on the 31st day of October, 1961, at the Authority's Office, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, at which time and place the proposals will be publicly opened and read aloud.

The work under this contract consists of the construction of the upper portion of the South Buttress of the Power Plant from approximately El. 543' to El. 576'-1"; mechanical, electrical and partial architectural work below approximately El. 543' in the South Buttress; a two story Observation (Overlook) Building approximately 120' x 120' in plan located atop the South Buttress of the Robert Moses Niagara Power Plant; a one story Reception Building approximately 89' square including a basement, foundations, and a stair tower; a connecting enclosed overpass approximately 13' wide by 8' high by 238' long connecting these two buildings; a section of Lewiston Road and South Approach Road; and other appurtenances in and around the South Buttress and Service Tunnel.

All work shall be completed on or before May 15, 1963.

Plans, specifications and proposal forms for the work may be obtained from the Power Authority of the State of New York, 18th Floor, The Coliseum Tower, 10 Columbus Circle, New York 19, New York, upon application and prepayment of a fee of Twenty Dollars ($20.00) per initial set of contract documents, and Fifteen Dollars ($15.00) per set for additional sets, no part of which will be refunded. Plans, specifications and proposal forms for the work will be on file in the Authority's Office and in the offices of the Engineer, Uhl, Hall & Rich, 230 Congress Street, Boston 10, Massachusetts, and may be inspected by prospective bidders during office hours.

Bids must be made and returned in duplicate in accordance with instructions contained in the Information for Bidders. Guarantee will be required with each bid in an amount not less than 20 percent of the total of the gross sum bid.

The right is reserved to reject any or all bids.

W. S. CHAPIN
GENERAL MANAGER

PA-N-23043

District of Columbia—Highway Construction—Dept. of Hwys. & Traffic, D. C., Sept. 19, 1961. CONSTRUCTION OF ROADWAY AND STRUCTURES, SOUTH APPROACH TO NEW WEST HIGHWAY BRIDGE OVER POTOMAC RIVER, VIC. 14TH ST., FEDERAL AID INTERSTATE PROJECT NO. I-95-1(30)0, Contract 5, Invitation No. C-622-H/1, consist. of approx. 8,248 lin. ft. combination Portland Cement Concrete Curb and Gutter (9" curb); 1,377 cu. yds. of structure concrete, Class "BB"; and 3,805 cu. ft. stone masonry. Bid forms, plans and specifications are now available from Supervisor, Bid & Contract Div., Procurement Office, D. C., Rm. 404, 499 Pa. Ave., N.W., upon deposit of a certified check for $60.00 per set, payable to D. C. Treasurer (Phone NA 8-6000, Ext. 448). SEALED BIDS to be opened 3:00 PM, Oct. 10, 1961, in Rm. 424, 499 Pa. Ave., N.W.

Bids: November 15, 1961

The Republic of Indonesia Department of Harbors Djakarta, Indonesia

The Government of Indonesia, through the Department of Harbors, solicits tenders for the construction of a reinforced concrete wharf on precast concrete piling plus transit shed and other facilities at Pontianak, Kalimantan. The pier structure will be 42 meters wide, 120 meters long, supported by 800 piles. The transit shed will be of structural steel.

Sealed bids will be received on 15 November 1961 at the Department of Harbors, Medan Merdeka, Timur 5, Djakarta, Indonesia. Plans and specifications may be viewed at the Harbor Department offices, at the office of the Consultant, Daniel, Mann, Johnson, & Mendenhall, 3325 Wilshire Boulevard, Los Angeles 5, California, and also at the following Indonesian Embassies and Consulates:

Washington, D. C.
San Francisco, California
Singapore, Malaya
Manila, Philippines
Hong Kong, B. C. C.
Tokyo, Japan
Bonn, Germany
Canberra, Australia
Paris, France

Interested parties may secure bidding documents from the Consulting Engineers upon making a deposit of $250.00, U. S. currency, 80% refundable to bona fide bidders.

Bids: November 1, 1961

Triborough Bridge and Tunnel Authority

SEALED BIDS WILL BE RECEIVED BY Triborough Bridge and Tunnel Authority at its office, Administration Building, Randall's Island, Manhattan, New York 35, New York, as follows:

Until 11 A.M. Wednesday, November 1, 1961

For Narrows Bridge Contract No. NB-11, Staten Island Approach and Plaza, Staten Island, New York City. The bid must be accompanied by a deposit in the amount of $250,000.00.

The contract includes grading, drainage, concrete and steel structures and paving.

Plans, specifications and contract documents may be purchased at the office of the Authority for $100.00 which will not be refunded.

U. S. Government

Sealed bids for air conditioning phase II at the U. S. Post Office & Courthouse (New) Pittsburgh, Pa., will be received until 2:00 P.M. E.D.T. October 27, 1961 and then publicly opened. Bidding material may be obtained after 9-29-61 from the Design and Construction Division, 12th Floor West, Public Buildings Service General Services Administration, 250 Hudson Street, New York 13, N. Y.

OFFICIAL PROPOSALS enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

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Send to office nearest you.
NEW YORK 36: P. O. Box 12
CHICAGO 11: 645 N. Michigan Ave.
SAN FRANCISCO 11: 255 California St.

• POSITIONS VACANT

Structural Engineer-Midwest consulting firm seeks Ph.D. to design complex steel structures, reinforced and prestressed concrete. Preference will be given to applicants with practical experience. Permanent position with established firm in business since 1929. Moving expenses paid. Send resume, including education, experience, and personal qualifications to P-6245, Engineering News-Record.

Sanitary Engineer. Opportunity to assume overall supervision and client contact on sanitary projects for long-established midwestern consulting engineering firm. Experience in all phases of sanitary work is desired. Send complete resume of experience and qualifications. Replies held in strictest confidence. Our employees know of this advertisement. P-7178, Engineering News-Record.

Water Supply Designers (3) Reg. P.E.'s high salary, subsistence, bonus and other fringe benefits. Overseas assignment 18 months. Send Resume: Brown Engineers, 10 Columbus Circle, New York 19, N. Y.

Estimator—experienced in all types of excavation, and concrete structures. Expanding company, location in East. Please send resume. P-7396, Engineering News-Record.

Water Plant Superintendent—Water Distribution Superintendent—Mid-Western University City of 40,000 population is accepting applications of the above positions. The City has recently assumed operation of the Water Utilities and the position offers a real challenge for competent and experienced men. Salary open, liberal vacation, sick leave, etc. Apply P-7440, Engineering News-Record.

Positions open for experienced highway designers, draftsmen and tracers. Address application to Yule, Sticklen, Jordan & McNee, P.O. Box 337, Camp Hill, Pa.

Engineering Sales Correspondent—The Fabricated Products Division of a major steel corporation is looking for a young engineering graduate to fill the position of sales correspondent in its Philadelphia branch office. This position will lead to a sales engineer field assignment in one of the Mid-Atlantic States. Attractive base salary, bonus plan and fringe benefits. P-7438, Engineering News-Record.

Overseas Managers. Long established U. S. consulting engineering firm is seeking engineering graduates to assume positions as overseas Branch Managers. Positions require administrative and management skills, together with experience in design and construction work. Age should be in range of 35 to 50 years. Excellent opportunity for qualified individuals to grow with expanding overseas operation. Send resumes covering personal background to P-7380, Engineering News-Record.

Permanent openings for Resident Engineers experienced in supervision of construction of large steam power plants and/or high-voltage transmission lines. Degree and registration desirable. Excellent opportunity with consulting engineering firm. Please send resume of education and experience to P-7228, Engineering News-Record.

Openings for recent Civil Engineer graduates with military obligatjons completed who desire to learn the construction business. Must be ambitious, aggressive, dependable, use no intoxicants, willing to start in the field on industrial buildings, defense construction, heavy construction, and willing to move. Preferably single. We operate throughout Kansas and adjacent states; offer excellent opportunity for advancement. Martin K. Eby Construction Co., Inc., P. O. Box 1679, Wichita, Kansas.

Highway Construction Supervision — Hartford, Conn. Exp. req., send qual. H. W. Lochner, Inc., 20 North Wacker Dr., Chicago.

• POSITIONS VACANT

Highway Consulting—Saudi Arabia; Admin., testing, locating, designing, constr. supervision. 2 yr. engagement, immed. assignment. Send qual. H. W. Lochner, Inc., 20 North Wacker Drive, Chicago.

Maintenance Superintendent needed by large and old Southern gravel producing corporation operating in Tenn, Ark, and Miss. Permanent position for mature man experienced in heavy equipment, cost records, preventative maintenance programs. Fringe benefits. Send complete resume with recent picture and starting salary required to P-7490, Engineering News-Record.

Sanitary Engineer with 3 to 10 years experience in preliminary studies and/or design of sanitary projects. Long-established consulting engineering firm offers permanent employment with opportunity for advancement. Please submit resume of education, experience and salary requirements to P-7363, Engineering News-Record.

Graduate Engineer with at least 1 year experience in electronic computer programming and/or application for Computer Section of large consulting engineering firm presently using Bendix G-15 Computer. Permanent employment with liberal benefit program. Reply with resume to Stanley Engineering Company, Muscatine, Iowa.

Estimator, Construction: Must be thoroughly experienced in quantity survey work for commercial and government buildings. Pricing knowledge not required. Good opportunity with progressive expanding organization. Forward qualifications and references to: Blake Construction Co., Inc., 1120 Connecticut Avenue, N. W., Washington, D. C.

Registered structural engineer for national structural steel fabricating firm located in Southern California. Permanent position with good possibility of advancement. Send resume, salary expected, references and availability to P-7511, Engineering News-Record.

Graduate Civil Engineer to learn prestressed concrete fabrication. Should have approximately two years of working experience in some engineering field, be married, willing to relocate in Greensburg, Pennsylvania, area. Opportunity involves layout and design of shop drawings, check on daily production line layout, testing of materials and quality control, surveying in connection with plant work and some jobsite work, estimating and quantity takeoff, field sketches. Good possibility to grow with the company. Reply to P-7534, Engineering News-Record, with resume of education and experience.

Bridge and Highway Designers. We have a number of openings for experienced Bridge and Highway Designers. No arbitrary length of previous employment is established; selection will depend on the design know-how and judgment a man has absorbed from his own particular experience. Only engineers with a sense of responsibility and a professional approach to their duties will be accepted. Long range backlog of work available, both domestic and foreign. Salaries depend on the individual and are individually negotiated. Increases are based primarily on merit. Other benefits are liberal. Write or telephone for application blank to—Capitol Engineering Corporation, Dillsburg, Pennsylvania.

Division Engineer to supervise all water & sewage facilities, experience and Degree in C.E., Ch.E., M.E. or San. E. required. Salary $7381 to $8528 depending on qualifications. Write Personnel Division, City Hall, Woonsocket, R. I.

Civil Engineers. Graduate engineers for Public Works positions. No experience necessary. Salary starts at $515 per mo. Deputy Road Commissioner. (Open Jan. 1, 1962 or before) California registered engineer with 5 years highway experience including 2 years administrative. Salary starts at $690 per mo. These positions located in attractive So. California coastal area. Apply Personnel Office, Court House, Ventura, Calif.

Two Openings—Graduate Civil Engineers $6058-$7722, depending on experience. For complete information contact Personnel Officer, Room 209, City Hall, Peoria, Illinois. 673-3763.

• POSITIONS VACANT

Construction Executive with experience and ability to take complete charge of a growing general construction co. Salary & profit sharing. P-7516, Engineering News-Record.

Structural Engineer. Structural design in Architect's office, involving schools, hospitals, commercial work. Located Kansas City. Permanent position, opportunity for advancement. Starting salary $8,000. Give age, education and experience. P-7553, Engineering News-Record.

Nations largest manufacturer of all-welded pre-engineered buildings wants sales engineers to fill positions in Florida and Mid-West. Engineering background required. Top opportunity and salary for right person. Write, giving background and experience, to Varco, P. O. Box 781, Pine Bluff, Arkansas.

Overseas Employment—Electrical Construction Job in Liberia, West Africa. Contract includes power plant, substations, transmission lines and distribution work. We are seeking Field Supervision for all phases of work. Please send complete resume of education and experience. Salary open. Schulman-Hatfield-Marson-Gens, 2416 South Michigan Avenue, Chicago 16, Illinois.

Draftsman—Detail Structural Steel, experienced. Send resume to Poughkeepsie Iron & Metal Co., Inc., P. O. Box 456, Poughkeepsie, New York.

Wanted—Project Manager 30-40. Fully experienced in heavy construction—earth, concrete and mining—bid to final estimate. Prefer man willing to invest in going concern—state age, experience and salary expected. All replies confidential. P-7543, Engineering News-Record.

• EMPLOYMENT SERVICES

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• POSITIONS WANTED

Civil Engineer, 26, single—Exp. hwys, bridges & gen'l bldg. const., fluent French, overseas or anywhere. PW-7422, Engineering News-Record.

Executive: Experienced Genrl. Manager, hvy, bldg & mech const. Govt Contracts, Atty, Acct, Adm. employed. PW-7407, Engineering News-Record.

Construction Engineer Executive, age 44, excellent health, BSCE, registered engineer several states. Liquidating own eastern company. Operated 7 years, industrial-commercial projects, large national accounts; mostly negotiated contracts. Know all phases, top negotiator, and contract closer, can open any door. Salary not major consideration. PW-7336, Engineering News-Record.

Project Manager, Contracts Administrator, Age 42, 20 years experience in engineering and contracts administration. Strong mechanical background, good knowledge civil. Mining, ore processing, steam power plants, papermills, refineries, petro-chemical plants, airbases, missile installations, heavy and general construction. Thoroughly competent in all phases of contracts administration and engineering office management. Previous foreign experience. Very good Spanish. Excellent references. Presently with engineering and consulting firm. Desire responsible administrative or managerial position. Prefer Europe or Latin America but will consider other locations. PW-7505, Engineering News-Record.

(Continued on opposite page)

OPENING FOR MAN WITH EXECUTIVE AMBITION IN BUILDING CONSTRUCTION

Man, not over 45, wanted as chief estimator; must be mature and neat appearing since much of our work is done on a negotiated basis involving personal contact with clients.

Must be capable of making complete quantity take-off and of pricing labor under union field conditions; must be familiar with demolition, earth work, concrete construction, masonry, and carpentry (rough and finished) for alteration and new construction in commercial, industrial, and institutional field. Present volume in low millions.

Northern New England location; salary and profit sharing arrangement; ownership in corporation invited. For personal interview, please write to:

P-7527 Engineering News Record
Class. Adv. Div., P.O. Box 12, N. Y. 36, N. Y.

• POSITIONS WANTED
(Continued from opposite page)

Const Equip Supt—Exp fleet dispatch, prev. maint., & rebuilding—also exp in excavation, sewer & water. PW-7506, Engineering News-Record.

Construction Executive—30 years experience in all phases of heavy and industrial construction, power plants, chemical plants, sewage plants, filtration plants, refinery installations, locks, dams and tunnels. Interested in connection with aggressive contractor doing lump sum contracts and/or promotional sales work. Estimating and pricing accurate. Primary education M.E. Desirous of participating agreement. PW-7492, Engineering News-Record.

Project Manager—Age 40—18 years experience design, supervision of design, personnel relations, customer relations and management for all types of large industrial plants—Western area preferred. Salary $12,000 min. PW-7459, Engineering News-Record.

Structural Engineer and/or Plant Manager. P.E. prestressed & precast concrete experience. Desire position with growth potential. PW-7471, Engineering News-Record.

Supt. of Project Mgr:—BSCE Licensed Engineer, three states, 18 years Supt & Project Mgr. expressways, interstate roads, dams and bridge construction, bids thru to completion. Proven ability with excellent record, available at once. Prefer East of the Mississippi, will relocate. PW-7458, Engineering News-Record.

Construction and Engineering Manager. Reg. PE, 35 years diversified experience including foreign available for new challenging connection. PW-7491, Engineering News-Record.

Administrator—Accountant, capable of setting up foreign operations, w/experience from S.&C. America, fluent Spanish, seeks position w/contractor going south. PW-7488, Engineering News-Record.

Civil Engineer, registered, BSCE, 39—desire position as City Engineer or Director of Public Works. Presently Engineer in Public Works. Experience in highways, bridges, municipal works, land development and surveys. Resume on request. PW-7452, Engineering News-Record.

B.S.C.E., P.E., 33. 6 yrs. exp. sewers, hwys, insp. West, Southwest area. PW-7323, Engineering News-Record

Construction Accountant. 15 years experience in every phase of Office Procedure. Presently employed as Secretary Treasurer of small construction firm. Available on reasonable notice. Age 36. PW-7555, Engineering News-Record.

Manager — Precast, prestressed concrete manufacturer. Experienced in production, sales, plant design, engineering, cost accounting. Construction background. PW-7557, Engineering News-Record.

Superintendent—30 years experience, desires steady employment. Thorough knowledge of heavy excavation projects. Also iron ore stripping and mining, coal mining and large solid rock excavations. Supervision and Maintenance of all types heavy construction equipment, project estimating; will accept position as Equipment Superintendent; finishing project soon, will accept position and go anywhere. PW-7533, Engineering News-Record.

Senior Civil Structural Engineer. Regist. in 8 states. Broad experience large bridges; industrial plants, commercial, instit. bldgs, etc. Handles multimill. dollar jobs from A to Z. Desires responsible position. PW-7513, Engineering News-Record.

(Continued on following page)

CIVIL ENGINEERS

Graduate Civil Engineer with at least 10 years progressive experience in design of powerhouses, tunnels, and intake structures for Section Head position. Working knowledge of fill dams and hydraulics with capability for following design studies in other departments required. Must have initiative to carry out studies to completion. Experience in client contact also necessary.

Graduate Civil Engineer as cost estimator for large hydro project with good experience in writing and reviewing specifications. Must have at least 5 years experience.

Fringe benefits and partial relocation costs. Send complete resume to Personnel Manager.

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We now have immediate openings for graduate engineers with a minimum of three years design experience in heavy industrial construction, preferably in the ore handling and processing field. Salary is based on qualifications and experience. Send a complete resume, including education, experience, and references to: PERSONNEL—
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P-7499, Engineering News-Record
645 N. Michigan Ave., Chicago 11, Ill.

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P-7502, Engineering News-Record
645 N. Michigan Ave., Chicago 11, Ill.

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• POSITIONS WANTED

(Continued from preceding page)

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Structural Engineer — Estimator — Spec. Writer. Thorough excellent design, estimating, contact & negotiating exper. Top eng. & const. firms. Large industrials, chemicals, power plants, bridges, airfields, waterfronts, etc. PW-7552, Engineering News-Record.

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Highway—Traffic Engr., P.E., 34, B.S.C.E., A.E. 7 yrs with major transptn authority in planning, design, safety, control, operation of vehic facilities. Desire position Europe. Fluent Italian, French, Spanish. PW-7532, Engineering News-Record.

Highway Engineer. Registered 2 states. 11 years exp. Can provide complete crew exp. in survey and design. Resume on request. PW-7537, Engineering News-Record.

Female Admin. Asst., considerable exper. all phases genl constr. office. All office skills—knowl. of plans, specs, & expedtg. Background in purch. includ. very hvy contact w/subs & suppliers. Excelnt. knowl. subcontracts. Faml w/biddg procedures, requisitions & submission shop dwgs., etc. Prefer NYC or vicinity office. PW-7558, Engineering News-Record.

Project Mgr—Chief Estimator—P.E., 17 years broad experience all phases construction management. Capable full charge from bid to completion. Industrial commercial work, N.Y. area. PW-7556, Engineering News-Record.

Chief Welding Engineer: Engineering degree, age 38, single. Just completed one years study as full time student in Welding Engineering at Ohio State University. 10 years production, design and R&D experience in alloy and exotic materials joining. Welding consultant for large fabricator (1,000 operators). Instructor, lecturer, publications and technical committee member for ASME Code, shipbuilding, AEC, powerhouse and refinery welding. Nondestructive testing. Ferrous and nonferrous, all processes. Can organize and administer your complete welding design and fabrication program. Resume immediately. PW-7538, Engineering News-Record.

BSCE, EIT—28, family—4 yr. varied hgwy exp. private and state agency. Will relocate for a versatile and responsible position offering admin. opportunity. Request resume. PW-7542, Engineering News-Record.

Civil Engineer, 38. Broad experience—administrative, supervisory, promotional levels in design; contracts & specifications; and construction. Streets, highways, airports, sewers, bridges, buildings, dams, drainage, soils & materials, and surveys. PW-7545, Engineering News-Record.

Structural—Civil Engineer—Grad. Engr. 42, married. Thoroughly familiar with all aspects of modern design-prestressed concrete, ultm. strength, plastic, composite, thin shell (H.P. and cylindrical), besides having broad field experience. Desire permanent position in W. or NW. PW-7562, Engineering News-Record.

Civil Engineer, 35, BSCE, with 7 years experience in all types of steel construction and fabrication and 3 years of highway design and layout, desires association with an engineering or manufacturing firm in a responsible design or administrative position. Prefers N. J., Eastern Pa. or Dela. Will also consider relocation if advantageous. PW-7559, Engineering News-Record.

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ENR-T4

Editorials

Blow to Airport Planning

The House of Representatives in a followup to the effective resistance it mustered against the so-called "back-door spending" provisions in the foreign aid bill, has performed the same questionable service to the airport aid bill. By forcing a compromise bill, stripped of provisions that would allow the Federal Aviation Agency to advance money to the various states ahead of actual appropriations (ENR Sept. 21, p. 48), it has dealt a blow to long-range planning and development of civil airports.

Money will soon be available for federal-aid projects for the current fiscal year, and next. Availability of funds for the following year is in doubt. Beyond that, apparently, the program will operate on a year-to-year basis, with no assurance of federal aid any time in the future.

The advantages of orderly long-range planning to meet airport needs are readily apparent. The typical federal-aid project has at least a two-year time lag from inception to completion; often the time is much longer.

Managers of major airports—where the need is the greatest—are operating under master plans that carry them many years into the future. Often local referendums must be held, bonds sold and other steps taken, all of which are difficult if the extent of federal participation is unknown. And in the face of these uncertainties airport managers have to struggle to keep up with a constant increase in air travel, handle present jet aircraft and plan for the supersonic airliners now being designed.

Assuming that the federal government does have a stake in civil airports, this was no time for the House to throw a monkey wrench in the works by returning to the uncertain direct appropriations system that prevailed from 1946 through 1955.

It can only be hoped that future Congresses will reverse this year's action, adopt a national airport plan and implement a long-range aid program.

New Concept in Building

Inventions made for military purposes sometimes develop into useful civilian products. One new military development worth watching stems from an idea of the U.S. Army Engineer Research and Development Laboratories, which is now being tested in Greenland for Camp Century, the Army's research city under ice (ENR Sept. 3, 1959, p. 24). There, the Army will use foamed plastic to build lightweight, rigid shelters in the field.

The foamed plastic may be used as building blocks or sprayed over formwork for continuous construction of entire buildings or huts to replace tents. The basic material, urethane, is shipped as a liquid and foamed on the construction site by mixing it with a foaming agent in a mechanical mixer such as an ordinary paint mixer. The final density is only 2 lb per cu ft.

This new material offers the important military advantage of conserving transportation space, since it is claimed to be only one-thirtieth as bulky as solid building materials that serve the same purpose. It is also light weight and a good insulator. And when used in arched construction, it shows sufficient strength to warrant consideration for Arctic buildings.

Foamed plastic has been applied in the field in building construction previously but mainly as non-structural thermal insulation. Also, foamed-plastic panels or blocks have been used before—in domed structures—but the units were fabricated off the construction site.

No information is available at present on the cost of foamed-in-place construction. But if the Army's experiments should prove successful and costs can be kept in the competitive range, this new material may well find a place in civilian building construction.

Don't Wait for Desalted Water

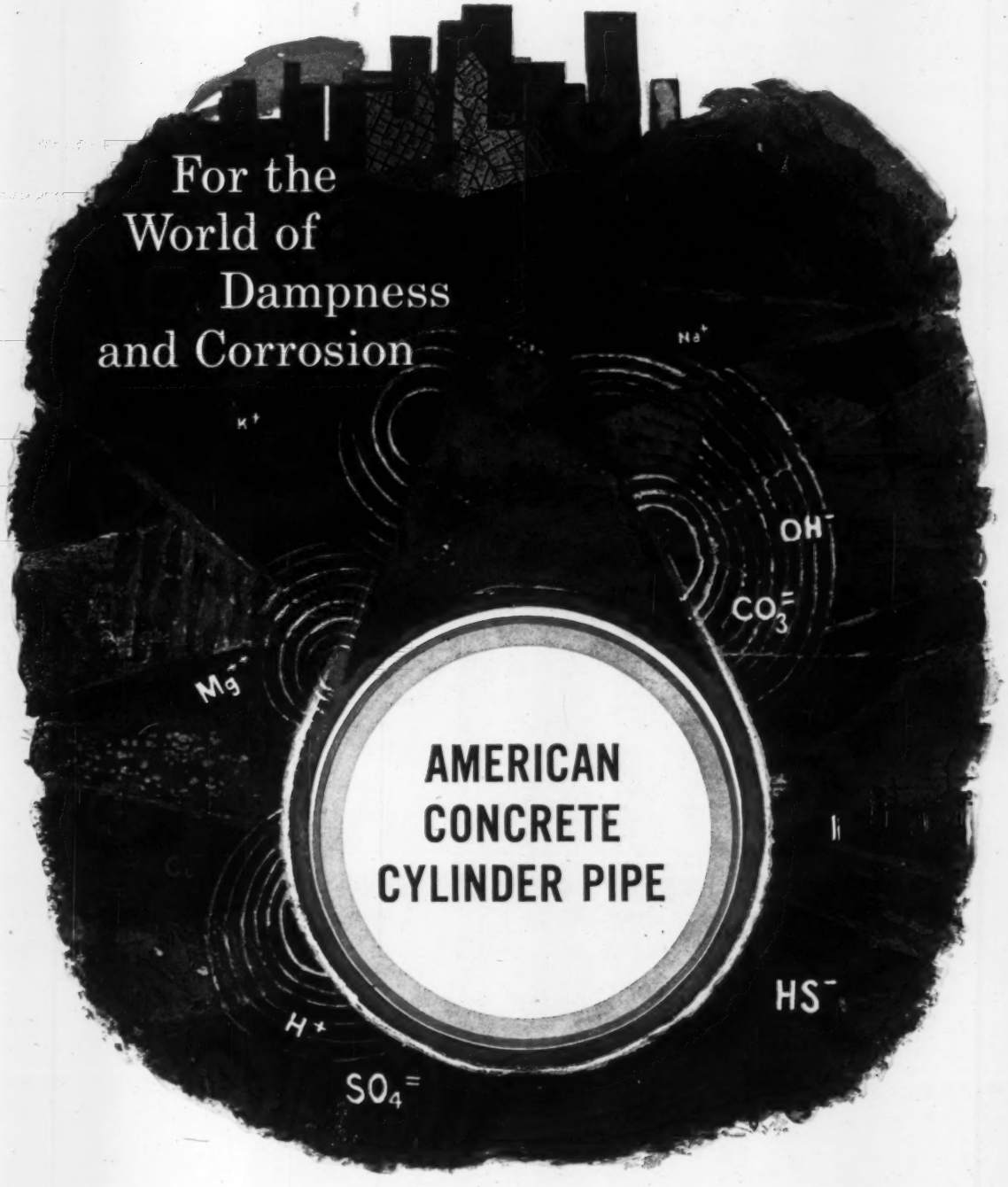
The new federal program on saline water conversion is sure to raise hopes here and there that purified salt water will soon be cheap. But sober reflection on the evidence fails to support such optimism.

The lowest production cost claimed for any of the Interior Department's demonstration plants is 80 cents per 1,000 gal, at the brackish groundwater conversion plant at Webster, S. D. Seawater conversion costs even more at the government plants—$1 to $1.25 per 1,000 gal (ENR Sept. 21, p. 41). No one has demonstrated large-scale plants that can do the job for less.

Even if these were the entire costs of water and could be cut in half, they would still be completely out of the question for the domestic supply of any but the most unfortunately situated communities. (And this is to say nothing of the other water uses that account for more than 90% of total withdrawals.) But it isn't nearly the whole cost. To it must be added all other cost elements between a source (conventional or otherwise) and the consumer—storage, distribution, administration. These make up the greater part of total cost.

Besides high production cost, each of the two sources has an additional serious handicap: Brackish groundwater conversion accentuates the already serious problem of water pollution. To the normal problem of disposing of fresh water after use is added the problem of disposing of the great quantity of concentrated brine discharged by the desalting plant. Seawater as a source has the transmission disadvantage of being downhill from everywhere. It can't be moved without pumping.

The answer to water shortages for a long time to come will remain what it is now: Conservation and protection of what we already have.



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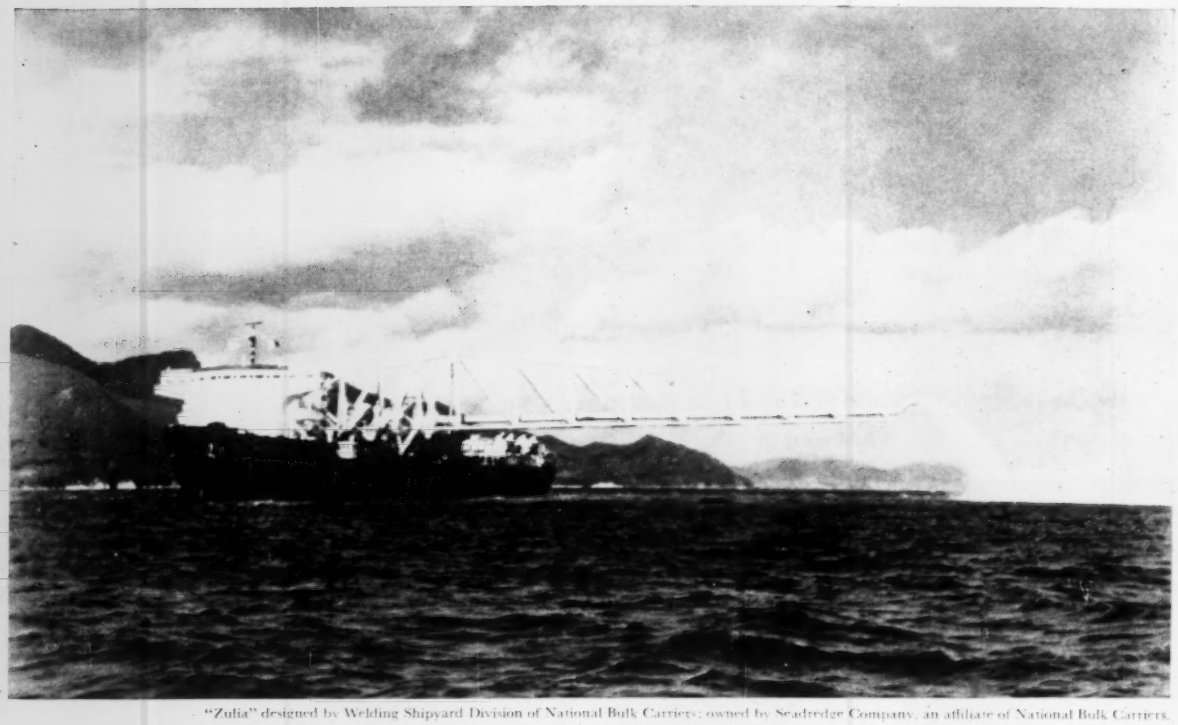

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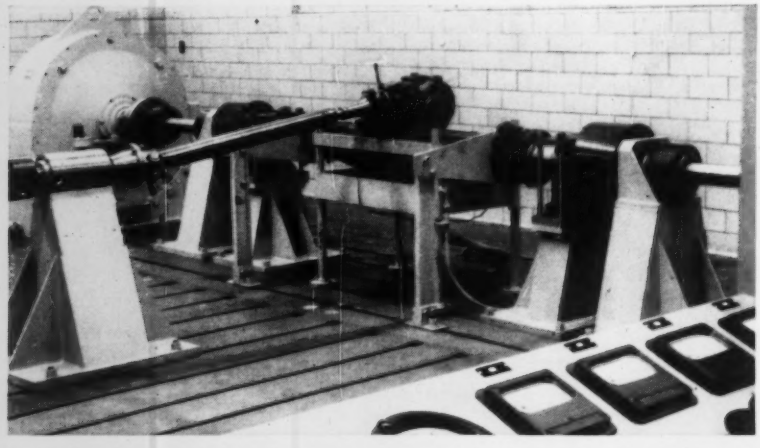

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